

**SONY®**

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COLOR VIDEO CAMERA

**DXC-537AP**

ZOOM LENS

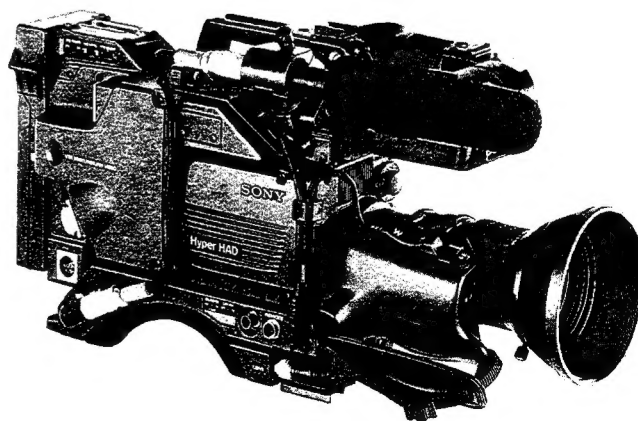
**VCL-916BYA**

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**SERVICE MANUAL**

Vol. 1 (1st Edition)


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**Hyper HAD™**

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## SAFETY RELATED COMPONENT WARNING

Components identified by shading and  marked on the schematic diagrams and parts list are critical to safe operation. Replace these components with SONY parts whose part numbers appear as shown in this manual or in supplements published by SONY.

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エレクトロニックビューファインダー DXF-501のサービス情報については、別途発行のDXF-501のサービスマニュアル (9-977-201-01) および、補修部品表 (9-977-201-71) をご覧ください。

カメラマイクホルダー CAC-12の補修部品については、別途発行のCAC-12の部品価格表 (9-967-251-71) をご覧ください。

On service information for the DXF-501/501CE electronic viewfinder, please see the DXF-501/501CE service manual (9-977-201-01) available separately.

On service information for the CAC-12 microphone holder, please see the CAC-12 service manual (9-967-252-01) available separately.





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## VCL-916BYA

## 1. GENERAL DESCRIPTION

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## SECTION 1 GENERAL DESCRIPTION

This section is extracted from  
operation manual.



## About This Manual

### Purpose and Audience for This Manual

The DXC-537A/537AP Color Video Camera is a camera for business and institutional use, having high picture quality and various functions. Therefore this manual has been prepared assuming that it will be read by all types of users: ranging from professionals and amateurs, to beginning camera operators. Please use this manual according to your experience and needs.

#### How to use this manual

##### **For those who are used to the operation of a video camera**

Begin with Chapter 2 and use it thereafter according to your needs.

##### **For those who are using a video camera for the first time**

We recommend that you read Chapter 1 to get a general idea about the video camera first and then read through the remaining chapters.

##### **For those who would like to start shooting immediately**

Read Chapter 2 and make the camera system connections and adjustments. If you have a system which has been already connected and adjusted, read Chapter 3 to learn the basic camera operations.

#### Glossary and Index

The terms with a number such as <sup>1)</sup> and <sup>2)</sup> are explained in the footnotes on the same page. The terms with an asterisk (\*) are explained in the Glossary on page A-6. Further, the Index provides terms in alphabetical order and the pages on which they appear.

## About This Manual

### Parts of This Manual

This manual is divided into six chapters and appendixes. The following is a brief summary of the contents of each part.

#### **Chapter 1 Introduction**

This chapter introduces you to the features of the camera, the names and functions of parts, and how to watch the viewfinder.

#### **Chapter 2 Connections and Adjustments of the Basic System — Camcorder System and Portable VTR System**

This chapter shows you how to set up, connect and adjust a portable camera system.

#### **Chapter 3 Shooting — Basic Operations**

This chapter explains the basic operations of the camera including the settings of the switches.

#### **Chapter 4 Shooting — Advanced Operations**

This chapter explains the settings of the switches according to each shooting situation and menu operations for shooting with special effects.

#### **Chapter 5 System Upgrading**

This chapter explains the connection examples of various camera systems other than the portable camera system. It also introduces the recommended components and optional accessories.

#### **Chapter 6 Maintenance**

This chapter provides troubleshooting and maintenance information for the camera.

#### **Appendix**

This section provides specifications and glossary.

## Chapter 1 Introduction

This chapter introduces you to the features of the video camera, the names and explanation of its parts and displays. It provides you with the overall information about the video camera.

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## Features

The DXC-537A/537AP series is a high quality color video camera for business and institutional use. The camera uses three 2/3" <sup>1)</sup> format Hyper HAD <sup>2)</sup> sensor CCD\* chips, each having a total of about 380,000 (NTSC) or 460,000 (PAL) effective picture elements.

The camera head is dockable with a camera adaptor or VTR, which provides maximum system versatility.

## High Picture Quality

**Horizontal resolution\* of 750 TV lines, signal-to-noise ratio of 62 dB (NTSC) or 60 dB (PAL)**

The high horizontal resolution of 750 TV lines and S/N are made possible by the use of high picture quality CCDs with 380,000 (NTSC) or 460,000 (PAL) effective picture elements.



## High F8.0 <sup>3)</sup> sensitivity

Even dark scenes, such as in a candlelight, can be shot with high quality.



Conventional camera



DXC-537A/537AP

### 1) 2/3"

Indication of the CCD size converted to the diagonal size of a picture tube. Generally, the larger the CCD size is, the lower the smear is, the higher the dynamic range is and the better the signal-to-noise ratio is.

### 3) F8.0

Indicates the aperture value when the standard picture level is obtained under the lighting of a certain brightness.

### 2) Hyper HAD <sup>TM</sup>

Abbreviation of Hyper Hole-Accumulated Diode. "Hyper HAD" is a trademark of Sony Corporation.

## Features

### High Sound Quality

#### Supplied super cardioid electret condenser microphone

It eliminates the noise caused by operating the camera, and records the sound from the front of the camera clearly.

#### Audio reference signal recording

While recording the color bar, the audio reference signal of 1 kHz, -60 dBm (0 dBm = 0.775 Vrms) can also be recorded on the VTR. The recorded signal can be used as a reference signal for checking the cable transmission loss, a sign to start a program, etc.

### Low smear

A vertical tail (smear) appears when a strong light is being shot. This camera suppresses the smear remarkably to make possible shooting with a spotlight.



### Two-dimensional crystal low-pass filter

Cross color in the horizontal and vertical directions is greatly reduced so that a fine mesh or striped pattern can be reproduced with less color blur.



### The ideal gamma curve\*

The gamma curve that determines the reproducibility of black is made to approach the ideal curve. Therefore, even black portions in details and dark scenes can be reproduced effectively.

### Stepping diagonal edge compensation circuit

When the difference in brightness between the top and bottom of a horizontal line is large, such as with a fluorescent lamp and window blinds, step-like notches appear on the horizontal line due to the scanning lines. This circuit compensates for these notches while maintaining the reproduction of detail.



Conventional camera



DXC-537A/537AP

## Versatile Shooting Functions and Operations

### ATW (Auto Tracing White balance) function

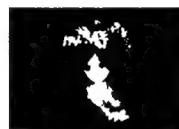
The white balance\* is automatically adjusted to correspond to the changes in the lighting conditions. It is especially convenient when you have little time to adjust it or when you make a continuous recording in a place when the lighting conditions change, for example, moving from outdoors to indoors.

### Auto iris compensation function

A backlit or spotlighted scene can be shot clearly by changing the reference level of the automatic iris adjustment with the A.IRIS MODE selector.



STD position



SPOT L position

### Electronic shutter

The built-in electronic shutter lets you shoot fast-moving objects with little blurring.



Electronic shutter OFF



1/500 second

## Features

### Gain\* selection function

Gain values of -3, 0, 3, 6, 9, 12, 18 and 24 dB can be set for each of the three positions on the gain selector.

### Turbo gain function

The gain can be set to 30 dB at a touch. It is especially useful when the lighting suddenly becomes dark while shooting.

### Color matrix\* switching function

Three color tones can be switched by the MATRIX selector to cope with the subject and situation. In the H. SAT position, a gorgeous party, for example, can be shot with vivid color tones. In the FL position, even under fluorescent lighting, the picture can be shot with natural color tones without greenish.

### DCC (Dynamic Contrast Control) circuit

Detects the peak level (the brightest part) of the subject, and automatically adjusts the knee point\*. High contrast that usually turns the screen white can also be reproduced.



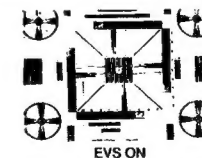
DCC OFF



DCC ON

### EVS (Enhanced Vertical Definition System) function

The vertical resolution can be increased from 400 lines to 450 lines (NTSC) or from 450 lines to 530 lines (PAL). However, please note that signal processing stops down the iris one stop, reducing sensitivity.



EVS ON

#### Note

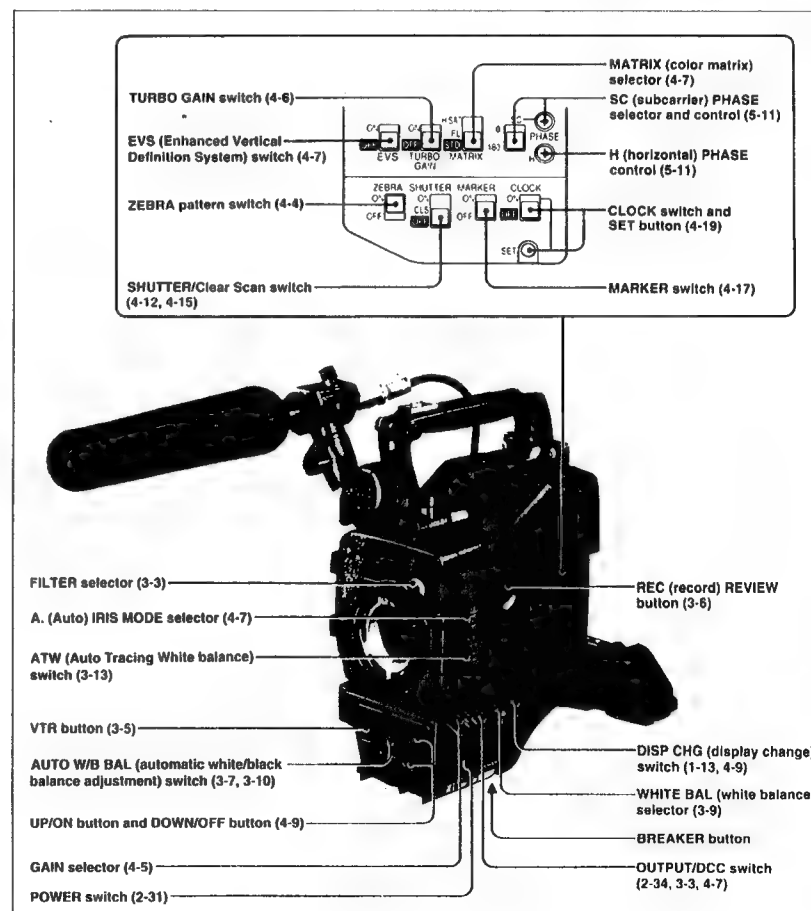
In EVS operation, the dynamic range is narrowed from 600% to 300%.

## Names of Parts

For explanation of each part, please see the page indicated in parentheses ( ).

## DXC-537A/537AP Camera Head

### Controls on the front and side



Controls on the front and side of DXC-537A/537AP

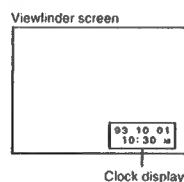
### CLS (Clear Scan™ 1)) function

This function adjusts the time difference required to produce a picture on a screen with a video camera and a computer. It reduces the stripe noise which appears when a CRT\* screen (such as the screen of a personal computer) is shot.



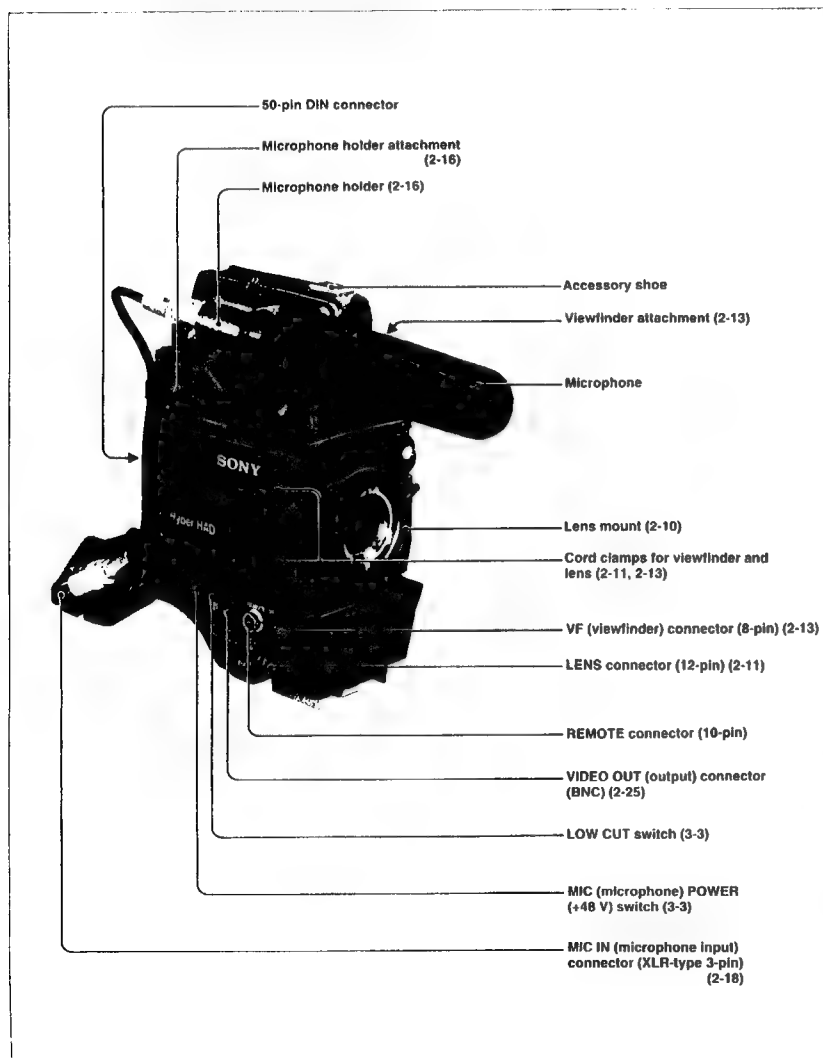
### Recording the year, date and time of shooting

The year, date and time of shooting can be recorded on the VTR.



1) Clear Scan™  
"Clear Scan" is a trademark of Sony Corporation.

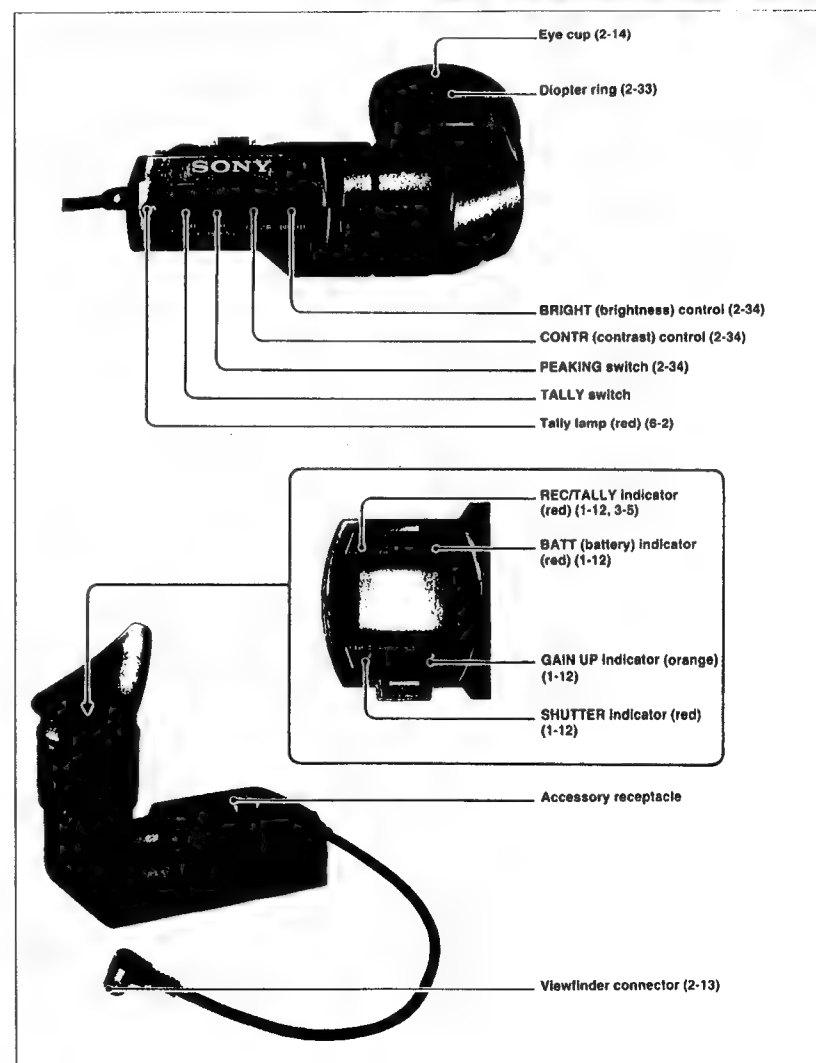
## Accessory attachments and input/output connectors



Accessory attachments and input/output connectors of DXC-537A/537AP

## Names of Parts

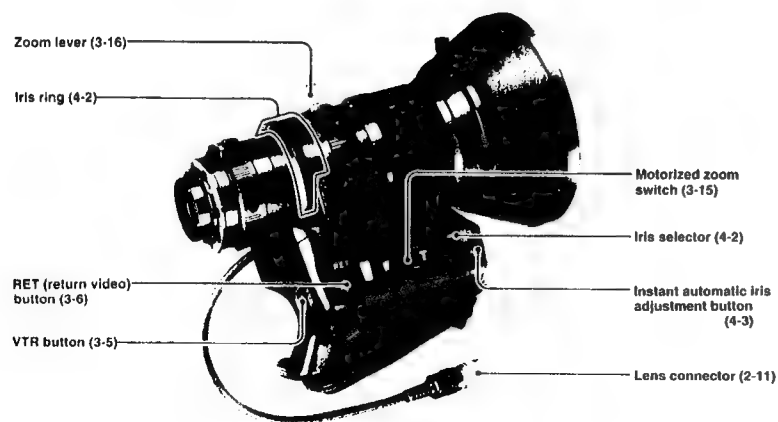
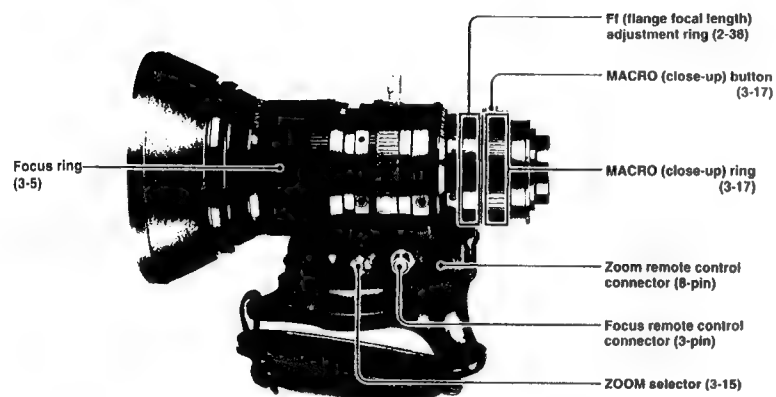
### DXF-501/501CE Viewfinder



DXF-501/501CE viewfinder



## VCL-916BYA Zoom Lens



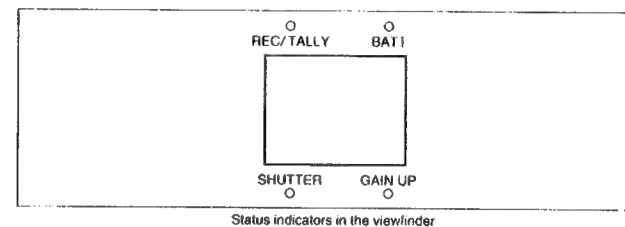
VCL-916BYA zoom lens

## Indicators in the Viewfinder and Viewfinder Display

This section explains the status indicators around the viewfinder screen and the messages displayed on the viewfinder screen.

## Status Indicators in the Viewfinder

There are four status indicators around the viewfinder screen. These indicators flash or light to indicate the status of the camera, VTR or camera control unit.



Status indicators and their meanings

Indicator (color)	Name	Flashes:	Lights:
REC/TALLY (red)	Recording indicator Tally indicator	<ul style="list-style-type: none"> <li>Just after a recording is activated (while the VTR is starting up).</li> <li>Only for a VTR with the warning function: when the VTR's movement is insufficient</li> </ul>	<ul style="list-style-type: none"> <li>During recording</li> <li>When a camera control unit is connected: When the picture of this camera is selected by the camera control unit</li> </ul>
BATT (red)	Battery indicator	When the battery of the VTR becomes weak (When using the camera adaptor's battery, it does not flash.)	When the battery of the VTR or the camera adaptor is exhausted
SHUTTER (red)	Shutter indicator	—	When the SHUTTER switch is set to ON or CLS
GAIN UP (orange)	Gain up indicator	—	When the gain is 3 dB or more

## When the camera control unit is connected

The BATT indicator flashes fast when a switch or control of the camera control unit is operated. This is not a failure of the unit.

### Viewfinder Display

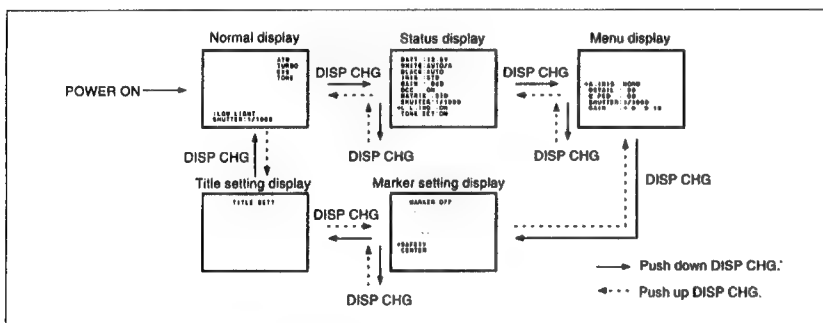
The following displays appear on the viewfinder screen.

- Normal display (including warning messages)

- Normal display (including warning messages)
- Automatic black balance and automatic white balance status display
- Status display (current setting status)
- Menu display
- Marker setting display
- Title setting display

## Changing the viewfinder display

Each time you push the DISP CHG switch down or up, the display changes in the following order.



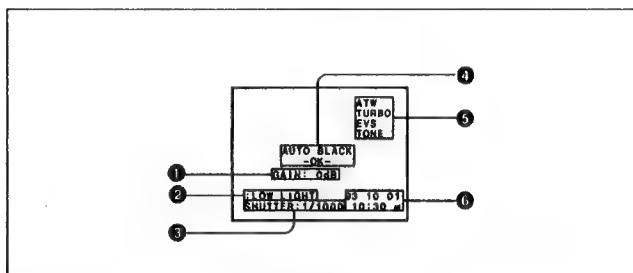
### Changing the viewfinder display

- On the status display menu display or marker setting display, the cursor appears to the left of the item. Each time the DISP CHG switch is pressed down, the cursor moves down, and when it reaches the bottom-most item, the screen changes to the next display.

### Indicators in the Viewfinder and Viewfinder Display

**Normal display (including warning messages)**

The viewfinder screen normally displays the following information. If a problem occurs, a warning message appears.



**Normal display**

### ❶ Switch Indicators

The following indicators appear for two seconds when each switch setting is

The following indicators appear for two seconds when each switch setting is changed.

Switch Indicators	
Switch	Indicators
GAIN selector	GAIN: -3 dB, GAIN: 0 dB, GAIN: 3 dB, GAIN: 6 dB, GAIN: 9 dB, GAIN: 12 dB, GAIN: 18 dB, GAIN: 24 dB, GAIN: TURBO
DCC switch	DCC: ON, DCC: OFF
WHITE BAL selector	WHITE: PRESET, WHITE: AUTO/A, WHITE: AUTO/B
A. IRIS MODE selector	IRIS: STD, IRIS: BACK L, IRIS: SPOT L
MATRIX selector	MATRIX: STD, MATRIX: FL LIGHT, MATRIX: H.SAT.

## ② Warning message

Warning messages are displayed to indicate a problem

**Warning messages** are displayed to indicate a problem.

Warning messages and their meanings	
Warning message	Meaning
LOW LIGHT BATT. 10.7V	Lighting is insufficient. The input voltage to the camera is low (less than 11V).

You can set the **LOW LIGHT** message to be displayed or not on the normal or status display.

On the normal display, press the **DOWN/OFF** button to turn off the message; press the **UP/ON** button to resume it. (For setting on the status display, see page 1-16.)

### ④ Shutter speed/CLS (Clear Scan) indicator

The current shutter speed or the Clear Scan frequency is displayed steadily.

### ④ Automatic black balance and automatic white balance status display

The following display appears when the automatic black balance or the automatic white balance function is activated.

Automatic black balance and automatic white balance status display

When:	Display
During black balance adjustment	AUTO BLACK -OP-
When the black balance adjustment is complete	AUTO BLACK -OK-
During white balance adjustment	AUTO WHITE -OP-
When the white balance adjustment is complete	AUTO WHITE -OK-

For details, see "Adjusting the Black Balance" (page 3-7), or "Adjusting the White Balance" (page 3-9).

### ⑤ Switch/function ON indicators

The following indicators appear when the corresponding switch or function is set to ON.

Switch/function ON indicator

Switch/Function	Indicator
ATW switch	ATW
TURBO GAIN switch	TURBO
EVS switch	EVS
TONE function	TONE

The TONE indicator appears when the OUTPUT switch is set to BARS with the TONE SET item on the status display set to ON. (See page 1-16.)

### ⑥ Clock display

The current year, date and time are displayed when the CLOCK switch is set to ON. The display is superimposed to camera video output.

For clock setting, see "Setting the Clock" on page 4-19.

## Indicators in the Viewfinder and Viewfinder Display

### Status Display

The display shows the current settings of the switches. It also allows setting the "L.L.IND" and "TONE SET" items.

```
BATT : 12.0V
WHITE : AUTO/A
BLACK : AUTO
IRIS : STD
GAIN : 000
DCC : ON
MATRIX : STD
SHUTTER: 1/100
*L.L.IND : ON
TONE SET: ON
```

Status display

Items on the status display and their meanings

Item	Meaning
BATT	Battery voltage
WHITE	WHITE BAL switch setting
BLACK	Black balance adjustment mode selected on the camera control unit or the remote control unit. (Always indicates AUTO when the camera is used without these units.)
IRIS	A. IRIS MODE selector setting
GAIN	Gain obtained by the current position of the GAIN selector, or TURBO (when the TURBO GAIN switch is set to ON)
DCC	DCC switch ON/OFF setting
MATRIX	MATRIX selector setting
SHUTTER/CLS	Shutter speed or Clear Scan frequency setting
L.L.IND	Select if the LOW LIGHT message is displayed on the normal display or not.
TONE SET	Select if the 1 kHz audio reference signal is output together with the color bar signal or not

### Setting L.L.IND and TONE SET

- Set the L.L.IND and TONE SET items on the status display as follows:  
Push the DISP CHG switch down or up to display the cursor to the left of the item to be set.
- Press the UP/ON button to set to ON, or the DOWN/OFF button to set to OFF.

### Menu Display

The following items can be set on the menu display.

```
A. IRIS : NORM
DETAIL : 00
M. PED : 00
SHUTTER: 1/100
GAIN : + 0 0 10
```

Menu display

## Precautions

### On Safety

#### Power supply

Operate the unit on 12 V DC power only. For operation, use the power source specified in this manual.

#### Do not disassemble the unit

Touching the high-precision parts in the unit may cause permanent damage. High voltage components inside the viewfinder are dangerous.

#### Keep foreign objects out of the unit

Dropping flammable or metal objects into the cabinet, or spilling liquids on the unit can lead to accidents.

### On Use and Storage

#### Avoid mechanical shock

There are high-precision parts inside the unit. Dropping the unit or subjecting it to mechanical shock may cause damage.

#### Mount the zoom lens correctly

Incorrect attachment may damage the lens. Before attaching, be sure to read "Attaching a lens" on page 2-10.

#### Dockable VTRs

The following are the VTRs which can be docked on this unit. Sony does not guarantee the use of the unit docked with the other VTRs.

VTRs dockable on this unit

Manufacturer and model number	Camera adaptor required
Sony Betacam SP VTR PVV-1/1P	—
Sony Betacam SP VTR BVV-5/5PS	CA-511
Sony Hi8 VTR EVV-9000/9000P	—
Panasonic S-VHS VTR AG-7450	CA-512/512P
JVC S-VHS VTR BR-S410/S411/S420C	CA-513

#### Do not cover the unit while in use

Covering the unit causes internal heat build-up.

#### Do not shoot the sun or a strong spotlight for a long period of time

This may damage the CCD elements. If the viewfinder is directly pointed at the sun, the sunlight may focus inside the viewfinder through the eyepiece, and damage the inside plastic.

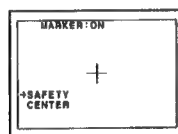
Items on the menu display and their meanings

Item	Meaning
A. IRIS	Set the reference level of the automatic iris function.
DETAIL	Set the detail level.
M. PED	Set the master pedestal* level.
SHUTTER/CLS	Set the shutter speed or Clear Scan frequency.
GAIN	Set the gain obtained by each position of the GAIN selector.

For setting the items, see "Shooting with Special Effects (Menu Operation)" on page 4-9.

### Marker setting display

The size of the safety zone and the center marker can be set on this display. To display the safety zone and the center marker, set the MARKER switch to ON.



Marker setting display

Marker setting items and their meanings

Item	Meaning
SAFETY CENTER	Set the size of the safety zone To display the center marker or not

For setting the markers, see "Displaying the Marker on the Viewfinder" on page 4-17.

### Title setting display

A title with letters and numbers can be created on this display and be recorded on the VTR.

Show the display on the viewfinder screen and create a title using the UP/ON and DOWN/OFF buttons.



Title setting display

For creating a title, see "Recording a Title" on page 4-21.



## Precautions

### Avoid the following conditions of use or storage

- In excessive heat or cold (permissible temperature range:  $-10^{\circ}\text{C}$  to  $+45^{\circ}\text{C}$  or  $14^{\circ}\text{F}$  to  $113^{\circ}\text{F}$ )

Remember that the temperature inside a locked automobile in summer can rise as high as  $50^{\circ}\text{C}$  ( $122^{\circ}\text{F}$ ).

- In damp or dusty locations
- Locations where the unit may be exposed to rain
- Locations where the unit is subject to vibrations
- Near locations where strong radio frequency energy is generated

### On use and storage of the lens

- When the unit will not be used for a long period of time, put the lens cap on the lens.
- Normally keep the lens attached to the unit. When removing the lens, choose a location where there is the least dust.
- When the lens becomes dusty or soiled, clean it immediately. For cleaning, see page 6-5.

### On transportation of the unit

Use the supplied carrying case or packing carton.

When you transport the unit as a package, put the unit in the carrying case and repack it with the packing carton of the carrying case.

### In case of trouble

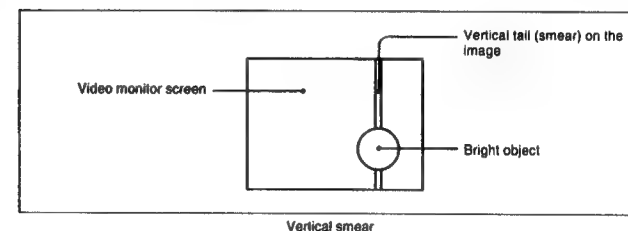
If you notice an unusual sound, smell or smoke, turn off the power immediately, disconnect the power supply and consult your Sony dealer.

## Notes on CCD Image Sensors

Because of the high sensitivity of the CCD image sensors, the following phenomena may appear on the monitor screen while you are using the unit. These phenomena do not indicate a malfunction of the unit.

### Vertical smear

Smear tends to happen when an extremely bright object such as an electric light, fluorescent lamp, sunlight or strong reflection is being shot.



### White dots

White dots may appear in the video output if the unit is used at very high temperatures.

### Aliasing

Aliasing may occur when you shoot fine stripes or straight lines. The lines will appear jagged.

### When using the electronic shutter

If the electronic shutter is used when the gain is 18 dB or more, a clear picture may not be obtained. Use the electronic shutter only under sufficient lighting conditions with the gain set to 0 dB or an approximate value.

## About the Basic System

### Video Camera Kits and Their Components

#### Components of the DXC-537A/537AP series video camera kits

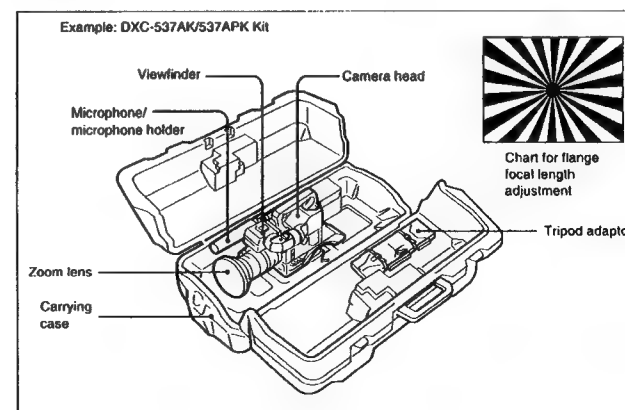
The DXC-537A/537AP camera head is sold as a kit with other components for a camera system. The model name differs according to the components included in the kit and the color system NTSC or PAL. The suffixes K, L and H mean kit names and the suffix P means the PAL system (therefore, the model names without suffix P are of the NTSC system).

Please see the following table and illustration to check your kit.

Components included in the DXC-537A/537AP kits

Model Name Components	DXC-537AK DXC-537APK	DXC-537AL DXC-537APL	DXC-537AH DXC-537APH
DXC-537A/537AP Camera Head	○	○	○
Chart for flange focal length adjustment	○	○	○
DXF-501/501CE Viewfinder	○	○	×
LC-421 Carrying Case	○	○	×
VCT-14 Tripod Adaptor	○	○	×
ECM-670 Microphone	○	○	×
CAC-12 Microphone Holder	○	○	×
EC-0.3C2 Microphone Cable	○	○	×
VCL-916BYA Zoom Lens	○	×	×

○: included in the kit    ×: not included in the kit



Carrying case is open.

## Chapter 2

### Connections and Adjustments of the Basic Systems

#### — Camcorder System and Portable VTR System

This unit can be used in various systems, however, this chapter explains the connections and adjustments of the Camcorder system, a unified system of camera and VTR, and the portable VTR system using a camera adaptor.

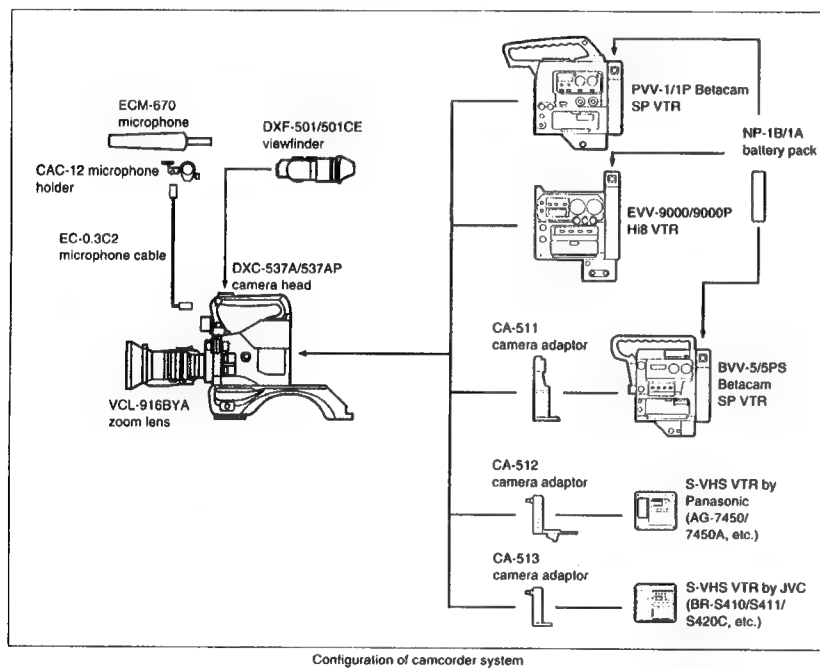
For other systems, please see chapter 5.

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Video Camera Kits and Their Components .....	2-2
Handling the Carrying Case .....	2-6
Attaching the Basic System Components .....	2-8
Attaching a Dockable VTR .....	2-8
Attaching a Camera Adaptor .....	2-9
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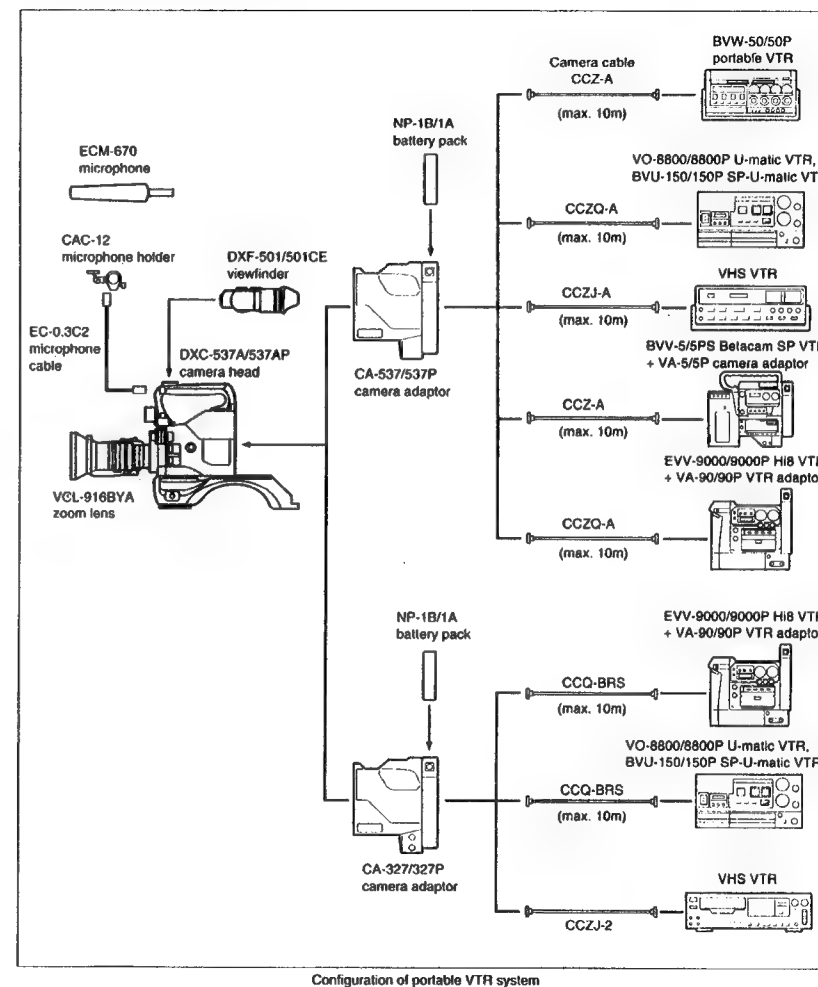


### Components required for shooting with a camera





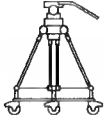
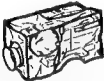


In addition to the components of the kit, other units such as a VTR and power source are necessary for shooting with the camera.  
The following charts show the configuration of a camcorder system and that of a portable VTR system.  
The equipment in shade are components included in the kit.  
For connection to stationary VTRs, see chapter 5.



### About the Basic System



### Convenient accessories for shooting

 VCT-14 tripod adaptor	 LC-421 carrying case	 LC-304SFT soft case	 NP-1B/1A battery pack
 Tripod	 LCR-1 rain cover	 CAC-4 chest pad	 BC-1WA/1WB battery charger

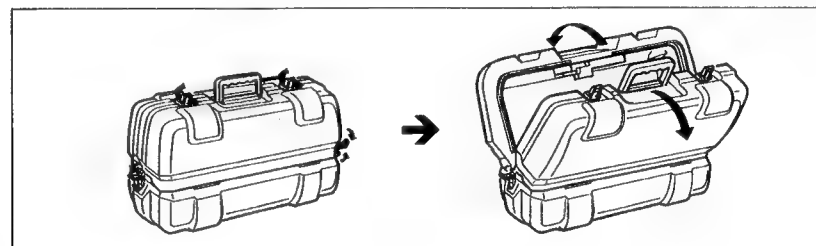
Accessories for shooting

## About the Basic System

### Handling the Carrying Case

#### Opening the carrying case

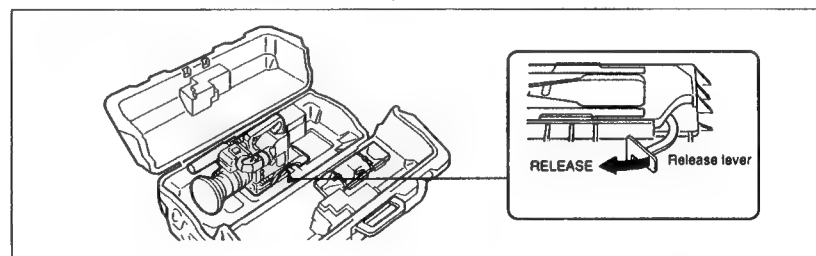
To open the camera carrying case, release the four catches at the edges of the case, then open the upper part of the case.



Opening the carrying case

#### Taking the Camera Out of the Case

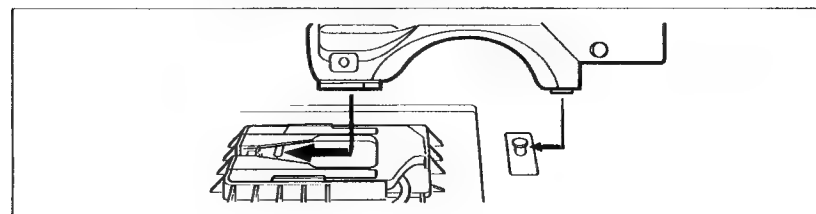
Push the lever on the bottom of the case toward **RELEASE** to unlock the camera. Slide the camera backward and remove it.



Taking out the camera

#### Packing the Camera in the Case

Align the bottom of the camera with the attachment grooves on the bottom of the case, and the pin on the bracket of the camera with the pin on the case. Slide the camera forward until it locks.



Packing the camera in the case



## Attaching the Basic System Components

### Attaching a Dockable VTR

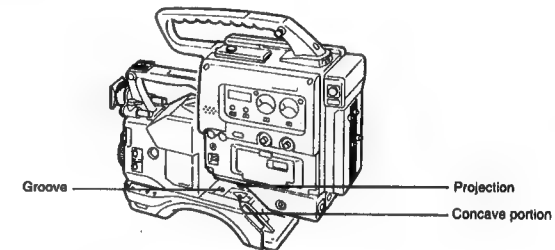
The camcorder system is a unified system of the camera and dockable VTR, such as the PVV-1/1P Betacam VTR and EVV-9000/9000P Hi8 VTR (optional). This section explains attaching a dockable VTR, using the PVV-1/1P as an example. The same procedures apply for attaching and detaching the EVV-9000/9000P.

#### Attaching a dockable VTR

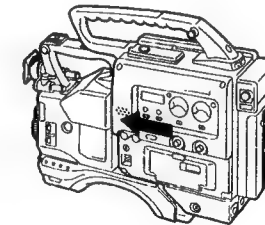
##### Note

Before attaching a VTR, remove the viewfinder from the camera head.

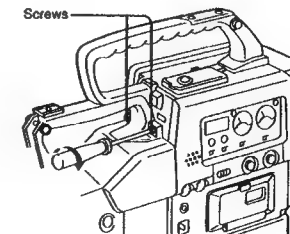
- 1 Place the projection on the bottom of the VTR on the concave portion of the camera.



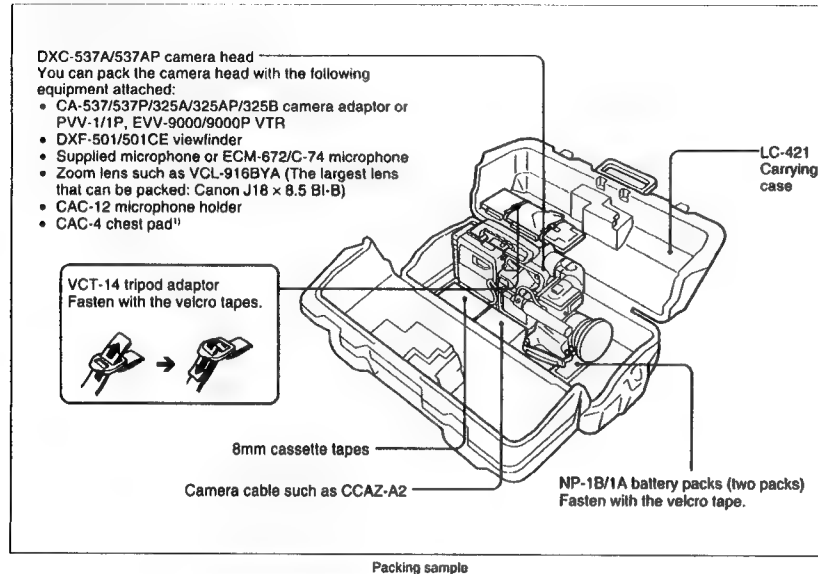
- 2 Slide the VTR forward until it locks.



- 3 Tighten the two screws on the handle.



#### Packing sample

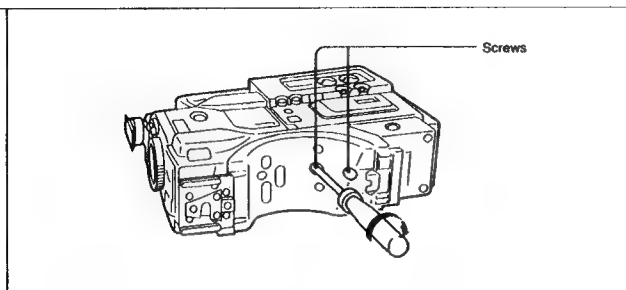


##### Notes on packing

- **Viewfinder**: Loosen the lock ring, slide the viewfinder to the left-most position, and tighten the ring. (See page 2-15.)
- **Microphone**: Loosen the microphone fastening lever, lower the microphone and tighten the lever. (See page 2-19.)

1) The CAC-4 cannot be packed when the PVV-1/1P is attached to the Camera.

- 4** Tighten the two screws in the shoulder pad.



#### Detaching a dockable VTR

Follow the above procedures in the reverse sequence.

### Attaching a Camera Adaptor

When using a portable VTR or camera control unit, attach the CA-537/537P or CA-327/327P camera adaptor to the camera head. The attaching and detaching procedures are the same as those for the dockable VTR.

#### Note on using the CA-327/327P camera adaptor

Only the CA-327/327P with the following serial numbers can be attached to the DXC-537A/537AP camera head.

CA-327: Serial number 10271 or higher for the DXC-537A

CA-327P: Serial number 40101 or higher for the DXC-537AP

If your serial number is lower than the above number, consult your Sony dealer since the printed circuit board needs to be exchanged.

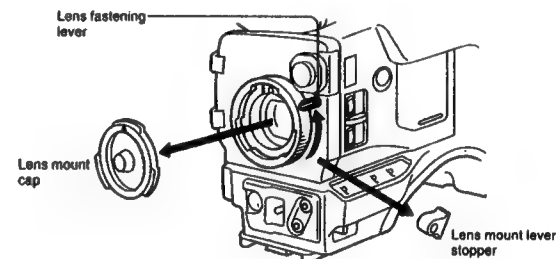
## Attaching the Basic System Components

### Attaching a Lens

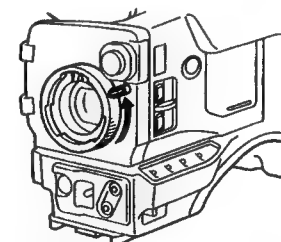
The lens in the DXC-537AK/537APK kit is already attached. For other kits, select a lens appropriate for the camera and attach it. Make sure to mount a 2/3-inch lens. This section explains how to attach a lens using the VCL-916BYA zoom lens as an example.

#### Attaching the lens

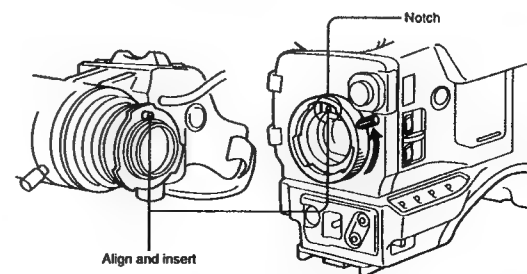
- 1** Remove the lens mount lever stopper from the lens fastening lever, push the lever up, and remove the mount lens cap.



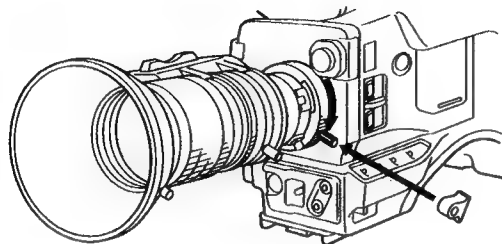
- 2** Turn the lens fastening lever fully counterclockwise.



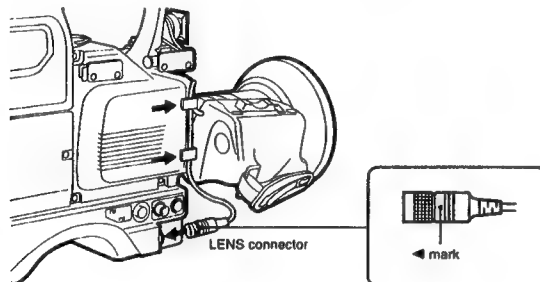
- 3** Align the center pin on the lens with the notch on the lens mount, and insert the lens into the mount.



- 4** Holding the lens, push down on the lens fastening lever to tighten the ring and secure the lens. Then replace the lens mount lever stopper removed in step 1.



- 5** Checking the position of the ◀ mark on the connector, insert it into the LENS connector on the camera until it locks. Thread and fix the cable along the clamps.

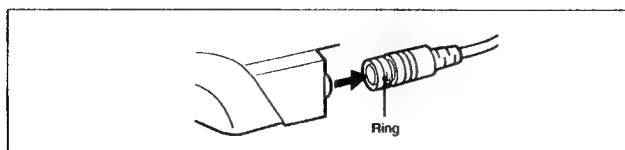


#### When the lens cable has a 6-pin connector

The LENS connector of this unit is a 12-pin connector. If your lens cable has a 6-pin connector, use an LO-612 (by Canon) or ECF-124 (by Fujinon) conversion cable.

#### Detaching a lens

Follow the lens attaching procedures in the reverse sequence. To remove the connector from the LENS connector, pull out the connector while holding the ring.

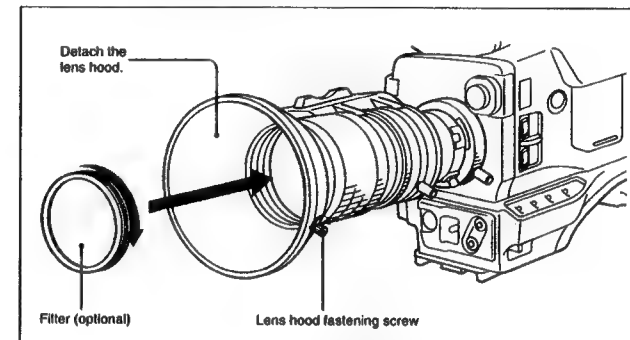


Removing the lens connector

#### Attaching the Basic System Components

##### Attaching an optional filter

Loosen the lens hood fastening screw and detach the lens hood. Then screw the filter clockwise along the threads in the lens barrel.



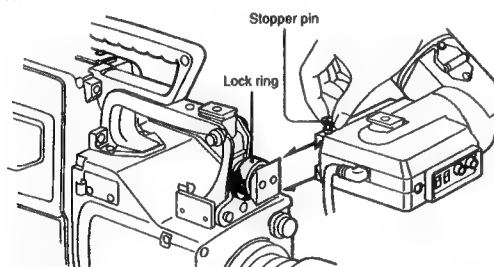
Attaching an optional filter

## Attaching a Viewfinder

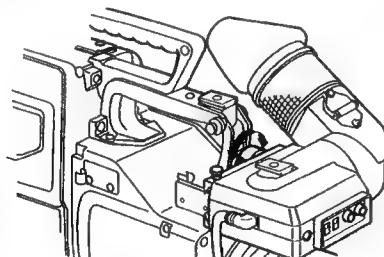
The viewfinder in the DXC-537AK/537AL/537APK/537APL kit is already attached. If your kit does not include a viewfinder, attach an optional viewfinder. This section explains how to attach the DXF-501/501CE viewfinder.

### Attaching the viewfinder

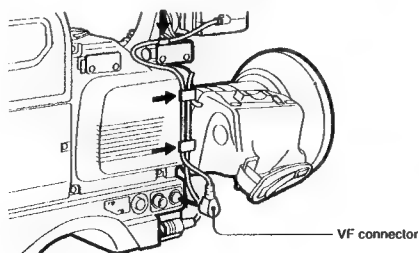
- 1 Loosen the lock ring. While pulling up on the stopper pin, align and guide the viewfinder along the viewfinder attachment.



- 2 Turn and tighten the lock ring to fasten the viewfinder.



- 3 Connect the viewfinder connector cable to the VF connector on the camera. Fasten the cable along the clamps.

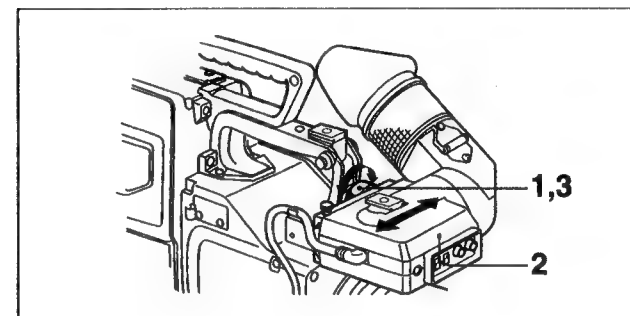


## Attaching the Basic System Components

### Adjusting the viewfinder position

You can adjust the position of the viewfinder in every direction (right and left, up and down, and front and back). Adjust it to the most comfortable position.

#### Adjusting to the left or right

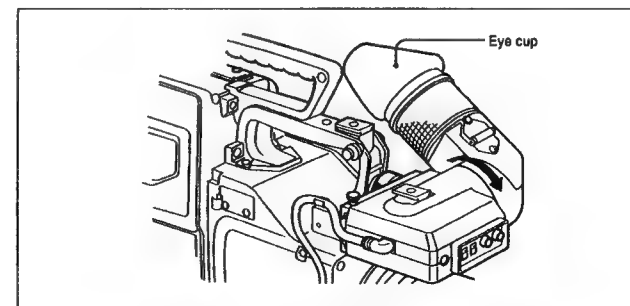


Adjusting the viewfinder position to the left or right

- 1 Loosen the lock ring.
- 2 Looking through the eye cup, slide the viewfinder sideways to the most convenient position.
- 3 Tighten the lock ring.

#### Adjusting the angle

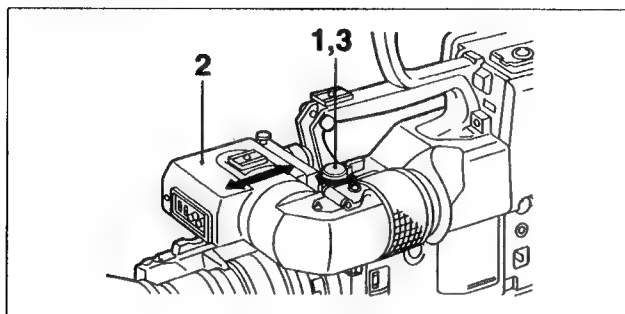
Adjust the angle of the eye cup by tilting it up or down.



Adjusting the viewfinder angle



### Adjusting front or back

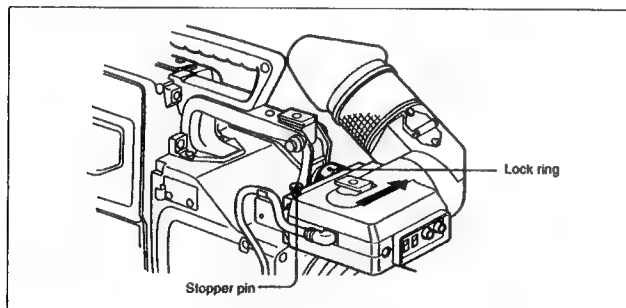


Adjusting the viewfinder position front or back

- 1 Loosen the LOCK lever.
- 2 Slide the viewfinder front or back.
- 3 Tighten the lever.

### Detaching the viewfinder

Loosen the lock ring, and while pulling up on the stopper pin, slide the viewfinder to the right to detach it.



Detaching the viewfinder

### Packing in the carrying case

The camera head can be packed with the viewfinder attached. When packing, tilt down the eye cup, and slide the viewfinder back and to the left all the way.

## Attaching the Basic System Components

### Attaching a Microphone

**DXC-537AK/537AL/537APK/537APL kit:** The CAC-12 microphone holder and the ECM-670 microphone are already attached. Attach the supplied wind screen to the microphone, if necessary.

If you exchange the microphone for a long one such as the C-74, detach the microphone holder and reattach it to the position for a long microphone. Then attach the microphone.

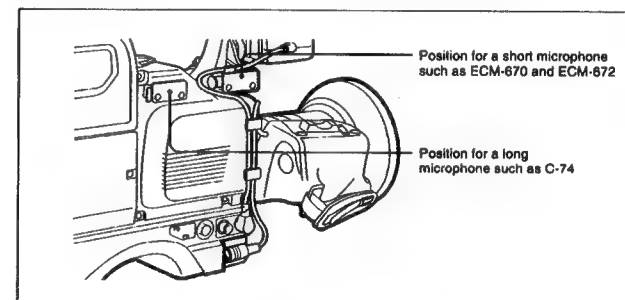
**DXC-537AH/537APH kit:** Attach the CAC-12 microphone holder and a microphone (neither supplied). Choose where to attach the CAC-12 depending on the length of your microphone.

This section explains how to attach the CAC-12 microphone holder, and the microphone supplied with the video camera kit as an example.

### Attaching the microphone holder

#### Positions to attach the microphone holder

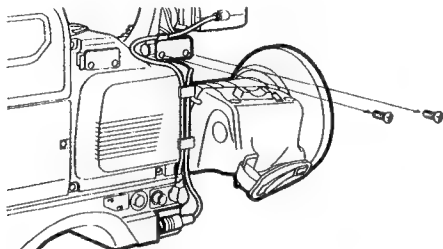
This unit is provided with two positions for the microphone holder. Choose the appropriate position according to the length of your microphone.



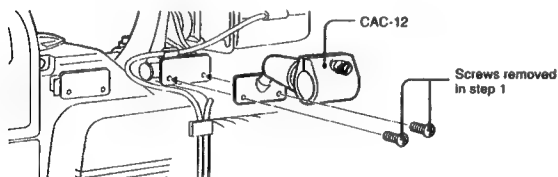
Positions to attach the microphone holder

### Attaching the microphone holder

- 1** Remove the two screws from one of the two positions for the microphone holder.

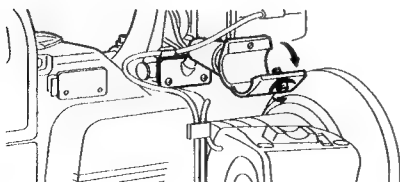


- 2** Attach the CAC-12 microphone holder using the screws removed in step 1.



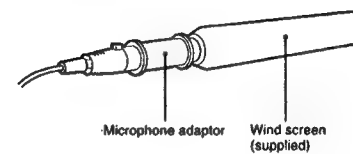
### Attaching a microphone

- 1** Loosen the microphone holder bolt and open the holder. (If your microphone holder is not the supplied one, take out the microphone adaptor from the holder.)

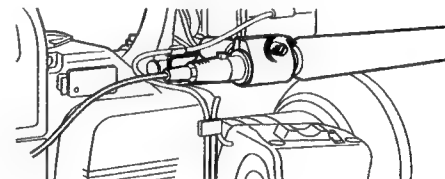


### Attaching the Basic System Components

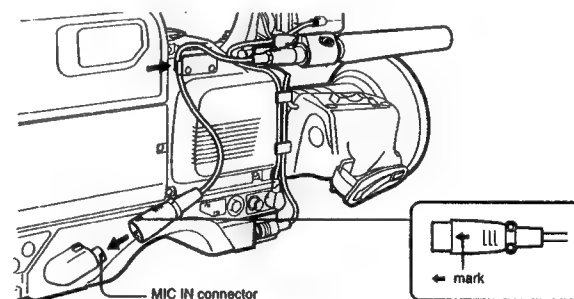
- 2** For the ECM-670, attach the microphone adaptor to the grip. (It is not necessary for the ECM-672 and C-74.)



- 3** Insert the microphone into the microphone holder, close the holder and tighten the bolt.



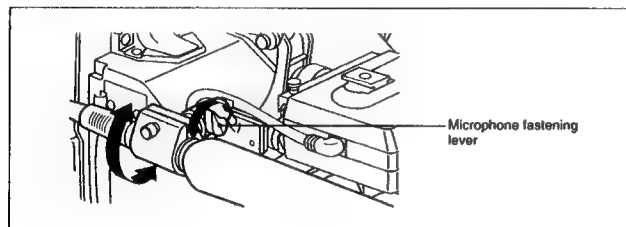
- 4** Checking the ← mark on the connector, insert the microphone cable connector into the MIC IN connector until it locks. Fix the cable along the clamp.





### Adjusting the position of the microphone

Loosen the microphone fastening lever, adjust the position of the microphone and tighten the lever.



Adjusting the position of the microphone

### Detaching the microphone

Follow the microphone attaching procedures in the reverse sequence. To remove the cable from MIC IN connector, pull out the cable while pressing the button on the connector.

### Packing in the carrying case

The camera head can be packed with the microphone attached. Loosen the microphone fastening lever, lower the microphone fully, and tighten the lever.

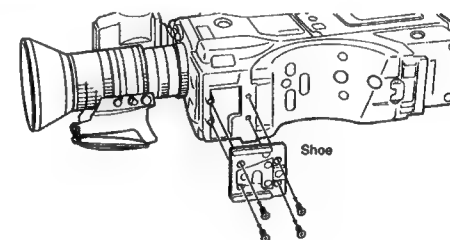
## Attaching the Basic System Components

### Attaching the Chest Pad

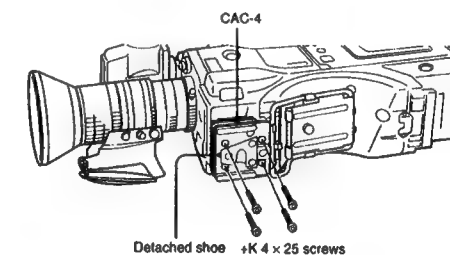
The use of the CAC-4 chest pad (optional) gives you steadier support for the camera.

#### Attaching the chest pad

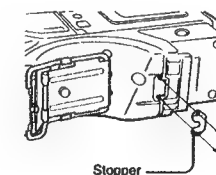
- 1 Detach the shoe from the bottom of the camera.



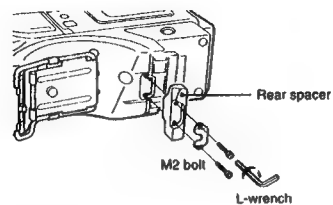
- 2 Place the chest pad between the shoe and the bottom of the camera and tighten them with four screws (+K 4 × 25) supplied with the CAC-4.



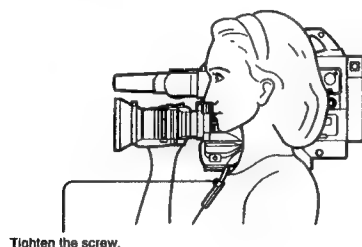
- 3 Detach the stopper from the bottom of the camera.



- 4** Insert the rear spacer (supplied with the CAC-4) onto the stopper, and tighten them with two screws (M2 bolts with hexagonal hole, supplied with the CAC-4) using an L-wrench.



- 5** Carry the camera on the shoulder, adjust the angle of the chest pad, and tighten the screw.



Tighten the screw.

#### When the chest pad is not in use

Loosen the screw, place the pad against the bottom of the camera and tighten the screw.

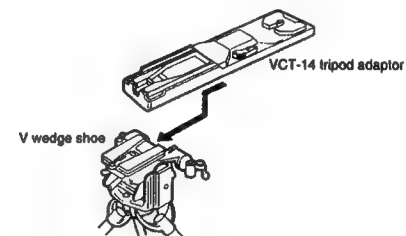
## Attaching the Basic System Components

### Attaching a Tripod

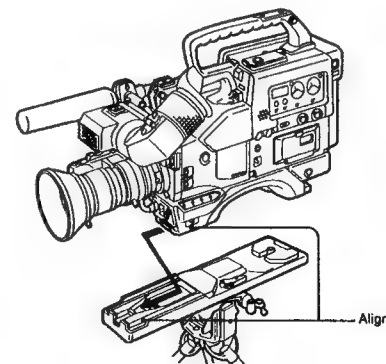
Fit the camera to the VCT-14 tripod adaptor and attach it to a tripod for stable operation.

#### Attaching the camera to a tripod

- 1** Attach the V wedge (supplied with the tripod) to the tripod adaptor, and insert the V wedge into the V wedge shoe on the tripod. If the tripod does not have the V wedge shoe, fit the screw at the top of the tripod stand into one of the holes in the tripod adaptor. Choose the hole that fits the screw and gives the best balance.



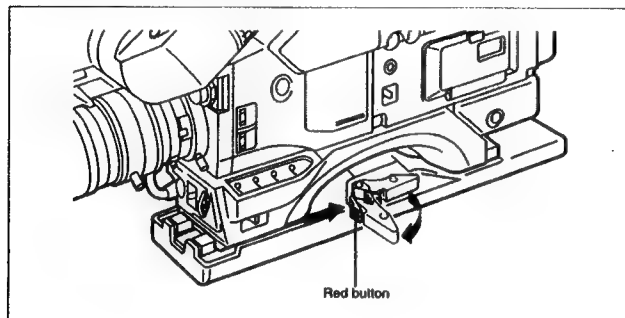
- 2** Slide the camera forward along the adaptor grooves until the camera clicks into place.





### Detaching the camera from the tripod

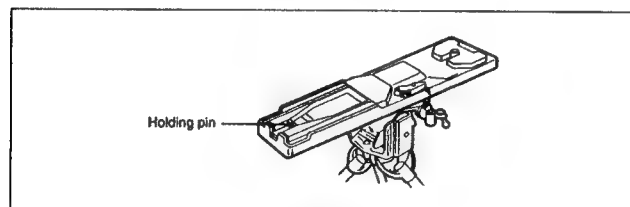
While pressing the red button, push the lever in the direction indicated by the arrow and detach the camera from the adaptor by sliding it backward.



Detaching the camera from the tripod

### After detaching the camera

If the holding pin does not go to its stowed position, press the red button against the lever and move the lever in the direction of the arrow until the pin drops down. Otherwise, you cannot remount the video camera onto the tripod adaptor.



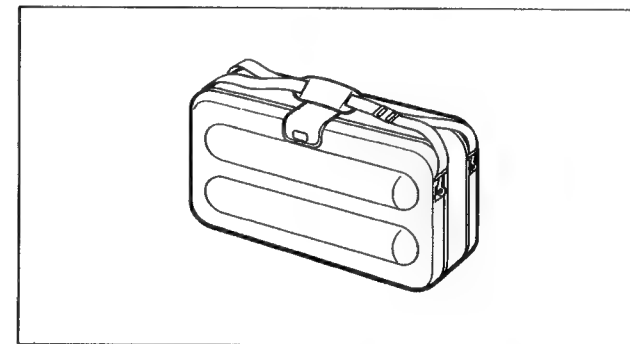
Returning the holding pin to its stowed position

## Attaching the Basic System Components

### Using the Soft Case and Rain Cover

#### Using the soft case

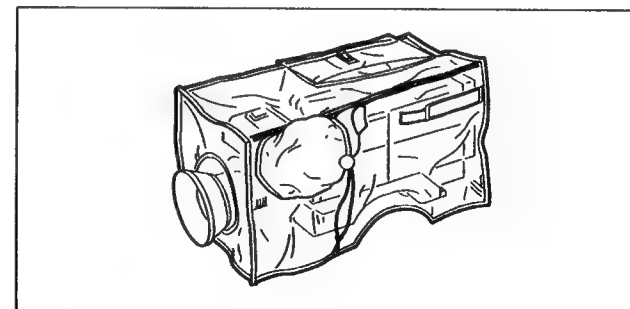
Use an optional LC-304SFT soft case when you want to carry the camera conveniently.



LC-304SFT soft case

#### Using the rain cover

Using an optional LCR-1 rain cover, you can operate the camera even in drizzling rain. (However, please note that the rain cover is not waterproof.)



LCR-1 rain cover

## Connecting a Portable VTR

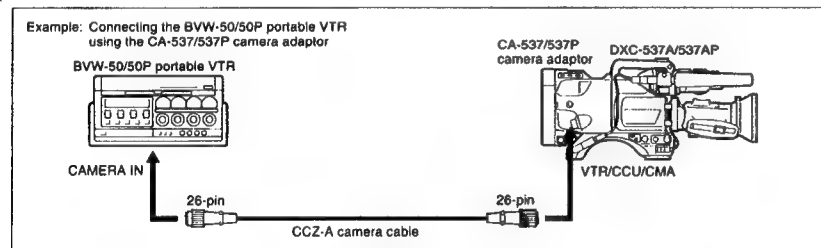
Use an optional CA-537/537P or CA-327/327P camera adaptor to connect a portable VTR. Depending on the connected VTR, set the VTR SELECT switch on the camera adaptor to the correct position.  
For VTRs and their matching camera adaptor and camera cable, see page 2-4.

### Check Before Connecting

Make sure the power switches on the camera, camera adaptor, VTR and other equipment are set to OFF.

### Connection Diagram

Using a camera cable, connect the CAMERA IN connector of the portable VTR to the VTR/CCU/CMA connector on the camera adaptor.



#### About the camera cable

- Use a camera cable that fits the CAMERA IN connector of the VTR to be connected. (See page 5-10.)
- The camera cable can be extended up to 10 meters (33 feet). For details, please consult your Sony dealer.
- When connecting a VTR made by a manufacturer other than Sony, please consult your Sony dealer.

#### About the video monitor

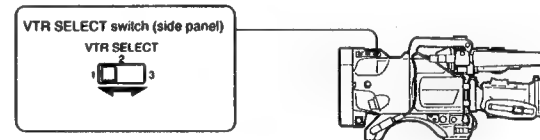
- If you use an S-VHS VTR, use of a video monitor with S video connectors is recommended. Connect a cable between the S video output connector\* of the VTR and the S video input connector of the monitor to get pictures of high resolution.
- The signal from the VIDEO OUT connector of the DXC-537A/537AP is a composite video signal. Connect the VIDEO OUT connector to a composite video input connector of the monitor.

## Attaching the Basic System Components

### Setting the VTR SELECT switch on the camera adaptor

The VTR SELECT switch on the camera adaptor selects the type of the video output signal from the VTR/CCU/CMA connector and the microphone output level. Set it correctly depending on the connected VTR.

Example: CA-537/537P camera adaptor



Setting the VTR SELECT switch on the camera adaptor

Setting the VTR SELECT switch on the CA-537/537P

VTR to be connected	Position of the VTR SELECT switch	Video output signal	Microphone output level
Sony VTR for broadcasting, business and institutional use (BVU-150/150P, VO-6800/6800PS <sup>1)</sup> , BVW-50/50P, BVV-5/5PS)	1	Composite (BVU-150/150P, VO-6800/6800PS) or component (BVW-50/50P, BVV-5/5PS)	-60 dB
Sony VTR for business and institutional use (VO-8800/8800P, EVV-9000/9000P)	3	Y/C	-60 dB
Panasonic VHS format VTR (AG-6400)	2	Composite	-20 dB
Panasonic S-VHS VTR (AG-7400 <sup>2)</sup> ) JVC S-VHS VTR (BR-S405)	3	Y/C	-20 dB

Setting the VTR SELECT switch on the CA-327/327P

VTR to be connected	Position of the VTR SELECT switch	Video output signal	Microphone output level
Sony VTR for broadcasting, business and institutional use (BVU-150/150P, VO-6800/6800PS <sup>1)</sup> )	1	Composite	-60 dB
Sony VTR for business and institutional use (VO-8800/8800P, EVV-9000/9000P)	2	Y/C	-60 dB
Panasonic VHS format VTR (AG-6400)	3	Composite	-20 dB
Panasonic S-VHS VTR (AG-7400 <sup>2)</sup> )	4	Y/C	-20 dB

1) Set the microphone level on the VO-6800/6800PS to -60 dB.

2) Set the input selector on the AG-7400 to Y/C.

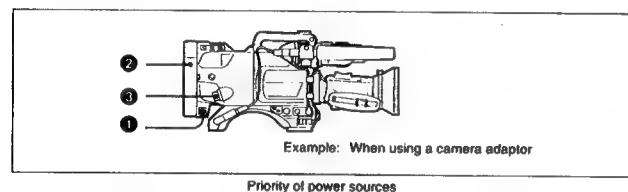


## Power Sources

The DXC-537A/537AP is powered by one of the following power supplies:

- ❶ Power supplied through the DC IN connector of the dockable VTR or camera adaptor.
- ❷ Battery pack installed in the dockable VTR or camera adaptor.
- ❸ Power supplied through the VTR/CCU/CMA connector of the camera adaptor.

The power is supplied to the 50-pin connector of the camera through the VTR or camera adaptor.



When two or three power sources (❶ to ❸ above) are connected simultaneously, the camera operation only uses one of the power supplies according to the following priority, ❶, ❷ and ❸. The other power sources are automatically cut off.

## Using a Battery Pack

Insert a battery pack, such as the NP-1B/1A (optional), into the battery case of a dockable VTR or camera adaptor.

### Charging a battery pack

Charge the battery pack before each use using the battery charger shown in the table below.

Battery chargers and charging time

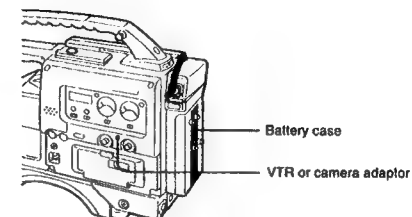
Battery pack	Battery charger	Charging time (at 25°C)
NP-1B	BC-1WA <sup>1)</sup> /1WB or BC-410/410CE	Approx. 95 min.
NP-1A	BC-1WA <sup>1)</sup> /1WB or BC-410/410CE	Approx. 70 min.
BP-90A	BC-410/410CE/210	Approx. 160 min.

1) The BC-1WA battery charger cannot charge the NP-1B sufficiently.

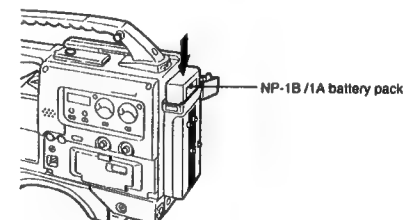
## Power Sources

### Installing the battery pack

- 1 Open the battery case lid.



- 2 Insert the battery pack into the battery case and close the lid.



### Continuous battery operation time

A fully charged battery pack can continuously power the camera and the DXF-501/501CE viewfinder for a certain amount of time.

The following table shows the continuous camera operation time or continuous recording time at 25°C, using a fully charged battery pack.

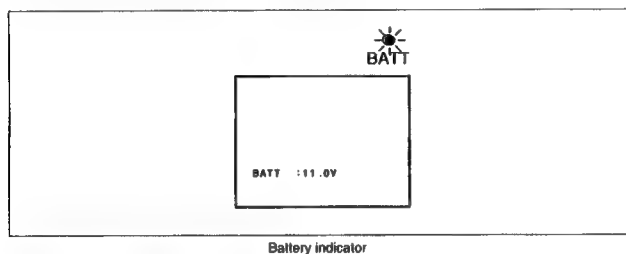
Camera operation time using a battery pack

Equipment to be used Battery pack	Operation with a camera adaptor	Recording with EVV-9000/9000P	Recording with PVV-1/1P
NP-1A	Approx. 80 min.	Approx. 50 min.	Approx. 45 min.
NP-1B	Approx. 105 min.	Approx. 70 min.	Approx. 65 min.
BP-90A <sup>1)</sup>	Approx. 245 min.	Approx. 160min.	Approx. 150 min.

1) The DC-210 battery case is required to use the BP-90A with the camera adaptor.

### Battery indicator

When the battery is nearly exhausted, the battery voltage value (11.0 V or less) appears on the viewfinder screen. If you continue to operate the equipment without changing the battery, the BATT indicator in the viewfinder also lights up to indicate that the battery must be replaced immediately.



#### Notes on using the battery pack

- Do not touch any metal object to the metal parts of the battery pack.
- Turn off the power before changing the battery pack.

### Tips for using the NiCd battery pack

#### On battery duration

- Battery duration is shortened in a cold environment.
- Battery duration is shortened if the metal parts (terminals) are not clean.

#### On charging

- Charge the battery at temperatures from 5°C to 40°C (from 41°F to 104°F). Lower temperatures require a longer charging time. Besides, the battery cannot be charged fully if the battery pack is heated up (more than 40°C) just after use.
- Charge the battery pack a day before each use, since the battery will discharge if it is installed in the VTR or camera adaptor with the power off.
- Charge the battery pack after it is used up completely. Repeated charging of a still usable battery will cause lowering its capacity.
- If the capacity of the battery pack is lowered due to light charging and discharging cycles, discharge it completely, and then charge it sufficiently. This will recover the battery capacity.
- If the battery pack is not used for a long time, the battery duration will be shorter than normal even after a full charge. The duration, however, will recover after several charging and discharging cycles.
- A battery pack can be fully charged and discharged about 300 to 500 times.

#### On storage

Store battery packs in a cool, dry place.

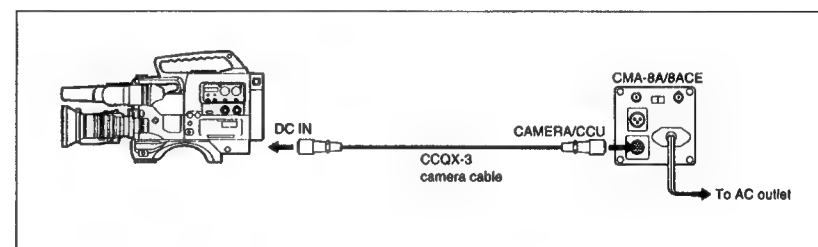
## Power Sources

### Using an AC Power Supply

To operate the camera on AC power, connect the power sources as follows:

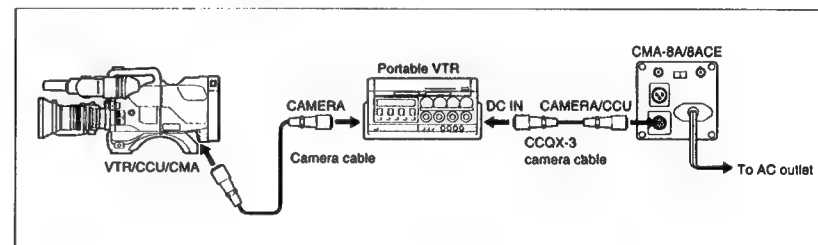
#### To power the camcorder system

Connect the CMA-8A/8ACE camera adaptor to the DC IN connector of the dockable VTR and to an AC outlet.



#### To power the portable VTR system

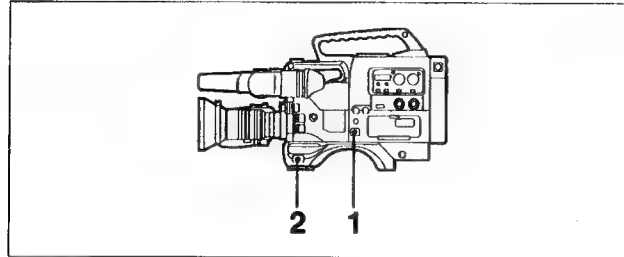
Connect the portable VTR to the VTR/CCU/CMA connector of the camera using an appropriate camera cable. Then connect the CMA-8A/8ACE camera adaptor to the VTR and to an AC outlet.



## Turning on the Power

After you attach and connect other equipment, turn on the power.

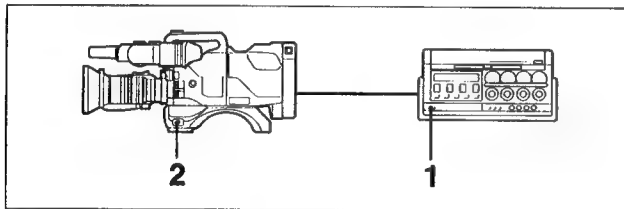
### When using a camcorder system



Turning on the power of a camcorder system

- 1 Set the POWER switch on the VTR to ON.  
The power is supplied to both the VTR and the camera.
- 2 Set the POWER switch on the camera to ON SAVE or ON STBY. The camera is turned on and the image is shown in the viewfinder.

### When using a portable VTR system



Turn on the power of a portable VTR system

- 1 Set the POWER switch on the VTR or camera control unit to ON.  
The power is supplied to the camera.
- 2 Set the POWER switch on the camera to ON SAVE or ON STBY. The camera is turned on and the image is shown in the viewfinder.

## Turning on the Power

### Functions of the POWER switch on the camera

The POWER switch has three positions.

Functions of the POWER switch

Position	Functions
<b>OFF</b>  OFF    ON    STBY +SAVE+	Turns the camera off.
<b>ON SAVE</b>  OFF    ON    STBY +SAVE+	Select to save power. The VTR enters power saving mode (drum heads do not rotate). It saves battery power when adjusting the camera or when the VTR is not used during a rehearsal. When you press the VTR button in this mode, there is a delay of a few seconds before recording starts. It is useful when you do not need to start recording immediately.
<b>ON STBY</b>  OFF    ON    STBY +SAVE+	Select for a standby mode. The camera is turned on and the VTR stands ready for recording. When you press the VTR button on the camera, lens or camera adaptor, recording starts immediately. It is convenient when you do not want to miss important scenes.

#### Note

The functions of the VTR in the ON SAVE and ON STBY modes differ depending on the VTR. For example, even if the switch is set to ON SAVE, the EVV-9000/9000P is not in the power saving mode. Please see the manual of the VTR.

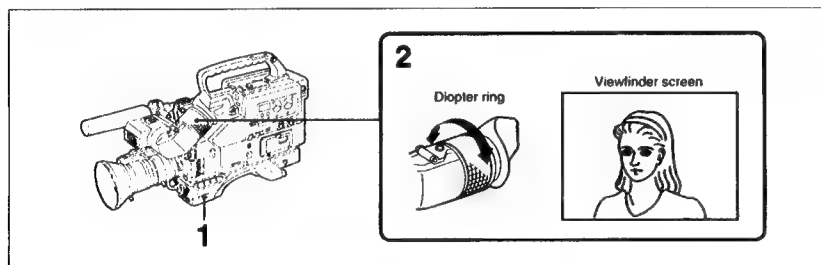
## Adjustments Before Shooting

This section explains the adjustments necessary before shooting. Do not fail to make these adjustments when you use the camera for the first time. From the second time on, make the adjustments as necessary, according to the following table.

Type of adjustments before shooting	
Type of adjustments	Adjustment is necessary when:
Adjusting the diopter of the viewfinder	the camera operator changes.
Adjusting the contrast and brightness of the viewfinder	the lighting condition changes.
Adjusting the color of the video monitor	<ul style="list-style-type: none"> <li>the lighting condition changes.</li> <li>the distance between the monitor and the camera operator changes.</li> <li>the monitor is changed.</li> </ul>
Adjusting the flange focal length of the lens	the lens is changed. (The DXC-537AK/APK includes the lens and the adjustment is made at the time of shipment.)

### Adjusting the Diopter of the Viewfinder\*

Because the eyesight of each individual is different, it may be necessary to adjust the diopter<sup>1)</sup> whenever a new camera operator uses the viewfinder. Turn the diopter ring inside the eye piece to adjust.



Adjusting the diopter of the viewfinder

- 1 Set the POWER switch to ON SAVE.  
An image appears on the viewfinder screen.
- 2 Turn the diopter ring so that you can see the image on the viewfinder screen clearly.

The range of the diopter is -1D to -3D. (Some individuals may not notice the difference in adjustment due to their eye flexibility.)

#### 1) Diopter

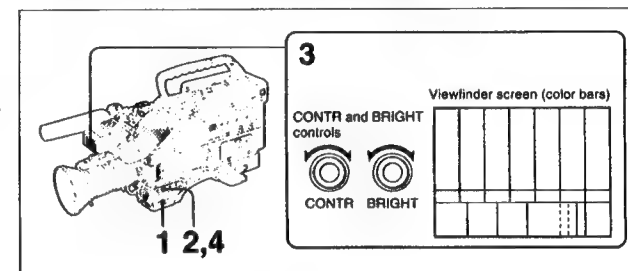
A unit to indicate the degree of convergence or divergence of a bundle of rays.

-1D is set at the time of shipment.

## Adjustments Before Shooting

### Adjusting the Contrast and Brightness of the Viewfinder

Adjust the contrast and brightness using the color bar signals on the viewfinder screen. The adjustment does not affect the video output signal of the camera.



Adjusting the contrast and brightness of the viewfinder

- 1 Set the POWER switch to ON SAVE.
- 2 Set the OUTPUT switch to BARS.  
The color bar signals are displayed on the viewfinder screen.  
(If TONE SET is ON on the menu display, the audio reference signal sounds.)
- 3 Adjust the contrast and brightness using the CONTR and BRIGHT controls on the viewfinder while viewing the viewfinder screen.
- 4 After adjustment, set the OUTPUT switch to CAM.

#### About the iris after adjustment

When you set the OUTPUT switch to BARS, the camera automatically changes to shading mode. If the iris selector on the lens is set to M (manual), the camera remains in the shading mode even if the OUTPUT switch is set back to CAM. Open the iris before you start shooting.

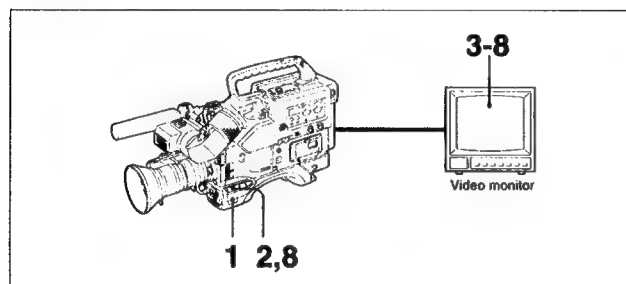
#### Adjusting the sharpness on the viewfinder

Set the PEAKING switch on the viewfinder to ON.  
The image on the viewfinder screen sharpens so that the lens can be focused easily.



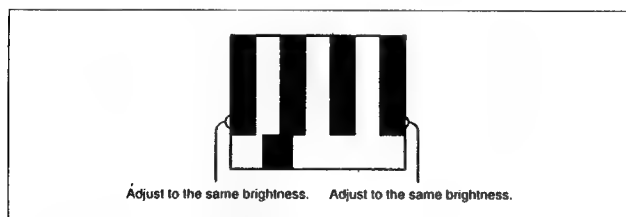
## Adjusting the Color of the Video Monitor

Adjust the color tone and brightness (black level) of the monitor using the color bar signals (SMPTE<sup>1)</sup> color bars) in the camera. Readjust the brightness when the lighting conditions or the distance between the monitor and the camera operator changes.



Adjusting the color of the video monitor

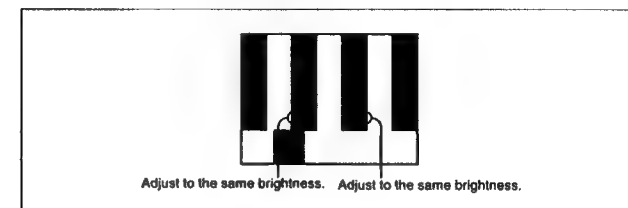
- 1 Set the POWER switch on the camera to ON SAVE.
- 2 Set the OUTPUT switch on the camera to BARS.  
The color bar signals are displayed on the monitor screen.  
(If TONE SET is ON on the menu display, the audio reference signal sounds.)
- 3 Set the BLUE ONLY switch on the monitor to ON.  
Monitor screen turns to blue monochrome and blue stripes appear.
- 4 Adjust the two bars as indicated below with the CHROMA control on the monitor so that they have the same brightness.



Brightness adjustment by CHROMA control

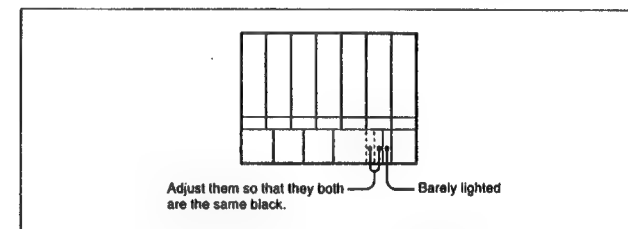
## Adjustments Before Shooting

- 5 Adjust the two bars as indicated below with the PHASE control on the monitor so that they have the same brightness.



Brightness adjustment by PHASE control

- 6 Repeat procedures 4 and 5 until the four bars have the same brightness.  
When they are the same, the adjustment of color tone is finished.
- 7 Return the monitor to the normal mode.
- 8 Adjust the brightness of the bars as indicated below with the BRIGHT control on the monitor.



Brightness adjustment by BRIGHT control

The adjustment of the brightness (black level) is now finished.

- 9 Set the OUTPUT switch on the camera to CAM.

### About the iris after adjustment

When you set the OUTPUT switch to BARS, the camera automatically changes to shading mode. If the iris selector on the lens is set to M (manual), the camera remains in the shading mode even if the OUTPUT switch is set back to CAM. Open the iris before you start shooting.

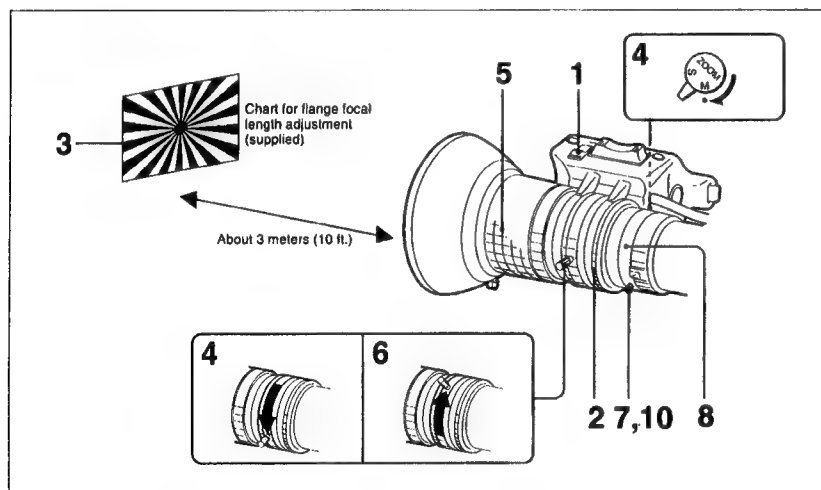
1) SMPTE  
Abbreviation for the Society of Motion Picture and  
Television Engineers

## Adjusting the Flange Focal Length\* — When the Lens is Changed

Flange focal length means the length between the lens attachment surface and the image formation surface. Adjust the flange focal length without fail when:

- you mount a lens for the first time (The DXC-537AK/537APK kit includes a lens and the adjustment is already made at the time of shipment.)
- you change a lens
- the lens does not stay properly in focus both at the wide-angle and telephoto positions when using the zoom.

Once you have made the flange focal length adjustment, you do not have to readjust the lens as long as the lens stays on the camera.



Adjusting the flange focal length

- 1 Set the iris selector to M.
- 2 Open the iris by turning the iris ring.  
This provides a shallow depth of field and easy observation of focusing.
- 3 Position the supplied chart for flange focal length adjustment about 3 m (10 ft) away from the camera, and light it enough to provide a sufficient video output level (about 80 IRE\* for NTSC or 560 mV for PAL, on the waveform monitor).
- 4 Set the ZOOM selector to M (manual) and turn the manual zoom lever to the telephoto position.

## Adjustments Before Shooting

- 5 Focus on the chart by turning the focus ring.
- 6 Turn the manual zoom lever to the wide-angle position.
- 7 Loosen the screw on the Ff adjustment ring.
- 8 Turn the Ff adjustment ring and focus on the chart. Be careful not to disturb the focus ring.
- 9 Repeat procedures 5 through 8 until the chart is in focus both at the telephoto and wide-angle positions.
- 10 Tighten the screw on the Ff adjustment ring.

### For more precise adjustment

Use a waveform monitor. The highest wave amplitude is the point in focus.

### For adjusting outdoors

If it is too bright to open the iris, use a high-speed shutter or an ND filter\*.



## Chapter 3 Shooting — Basic Operations

This section explains how to shoot using the automatic adjustments of this camera. It also explains the black balance and white balance adjustments which are required in all the color adjustments of the camera.

Basic operations for the camcorder system and portable VTR system are explained here. For other systems, also see Chapter 5.

<b>Basic Shooting/Recording</b> .....	3-2
Setting the Switches/Selectors .....	3-2
Videotaping Operations .....	3-4
<b>Adjusting the Black Balance</b> .....	3-7
<b>Adjusting the White Balance</b> .....	3-9
Memorizing the Correct White Balance Values .....	3-9
Using a Preset White Balance Value .....	3-12
Using the ATW (Auto Tracing White Balance) Function .....	3-13
Tips on the White Balance Adjustment .....	3-14
<b>Zooming</b> .....	3-15
Motorized Zooming .....	3-15
Manual Zooming .....	3-16
Close-ups .....	3-17

## Basic Shooting/Recording

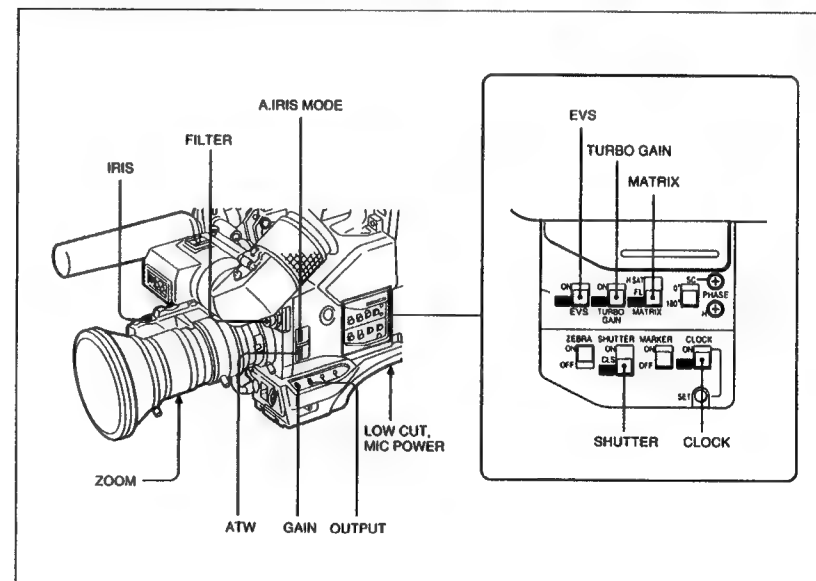
This section explains how to shoot simply using the automatic adjustment functions of the camera. In order to make full use of the camera, it is necessary to make various adjustments depending on the shooting conditions. (See chapter 4.)

The operating procedures are as follows:

- 1 Check that all the switches/selectors on the camera are set to the standard position.
- 2 Point the camera at an object.
- 3 Start/stop recording.

## Setting the Switches/Selectors

Check that the switches/selectors are set to the following positions:



Setting the switches/selectors

Standard position of the switches/selectors

Switch/selector	Standard position	Remarks	See page
<b>Camera</b>			
A. IRIS MODE	STD	—	4-7
ATW	OFF	Set to ON when the white balance needs to be adjusted immediately.	3-13
GAIN	LOW	—	4-5
OUTPUT	CAM (DCC ON)	—	4-7
EVS	OFF	—	4-7
TURBO GAIN	OFF	—	4-6
MATRIX	STD	Set to FL under the fluorescent lights.	4-7
SHUTTER	OFF	—	4-12
CLOCK	OFF	—	4-19
LOW CUT	OFF	Set to ON when the microphone picks up too much noise caused by the wind.	—
MIC POWER	ON	Set to OFF when using a microphone that does not use the external power supply system.	—
FILTER	The best position	Select depending on the light sources.	3-3
<b>Lens</b>			
Iris selector	A (auto)	—	4-2
ZOOM	S (servo)	—	3-16

### Selecting the optical filters

Select the position of the FILTER selector depending on the lighting conditions of the subject.

Position of the FILTER selector and lighting conditions

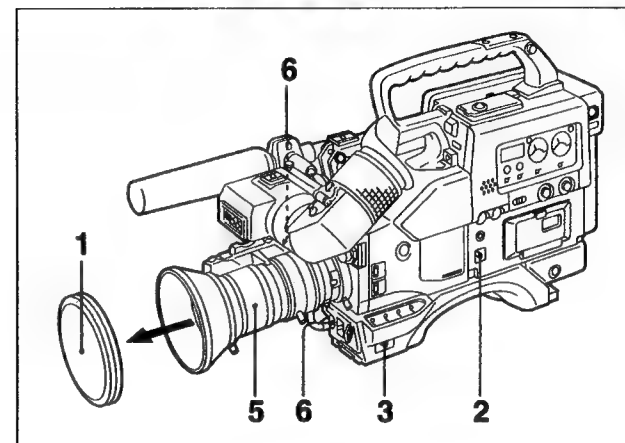
Position of the FILTER selector	Lighting conditions
1 3200 K	Halogen lamp for studio use, tungsten lamp (incandescent bulb), sunrise and sunset.
2 5600 K + 1/4 ND <sup>1)</sup>	Bright outdoors The amount of light is attenuated to 1/4 (two stops down on the iris).
3 5600 K	Cloudy or rainy outdoors, or under a fluorescent lamp.
4 5600 K + 1/16 ND	In the open daylight. The amount of light is attenuated to 1/16 (four stops down on the iris). Used to prevent hunting <sup>a</sup> or to decrease the depth of field <sup>a</sup> .

#### 1) ND

An ND (Neutral Density) filter<sup>a</sup>. It reduces the amount of incident light.

## Basic Shooting/Recording

### Videotaping Operations



Videotaping operations

- 1 Remove the lens cap.
- 2 Set the POWER switch on the VTR to ON.
- 3 Set the POWER switch on the camera to ON STBY or ON SAVE.

Setting the POWER switch

Position of POWER switch	Operating conditions
ON STBY	The camera is turned on and the VTR stands ready for recording. When you press the VTR button on the camera, lens or camera adaptor, recording starts immediately.
ON SAVE	The camera is turned on and the VTR enters the power saving mode (drum heads do not rotate). When you press the VTR button in this mode, recording starts in several seconds.

#### Note

The functions of the VTR in the ON SAVE and ON STBY modes differ depending on the VTR.

- 4 Point the camera at an object.
  - When taking close-ups of a subject that is at a close distance of less than one meter, use the macro function. (see page 3-17)
- 5 Adjust the focus by turning the focus ring while looking at the image in the viewfinder (or video monitor).
  - Use the zoom\* to change the size of the subject. (see page 3-15)



- 6** Start recording by pushing one of the following buttons:
- When using a tripod: VTR button on the camera
  - When carrying the camera on the shoulder: VTR button on the zoom lens
  - Using a portable VTR system on a tripod: VTR START/RETURN VIDEO button on the camera adaptor

The REC/TALLY indicator inside the viewfinder lights during recording.

#### Pausing during recording

Press the VTR button. The REC/TALLY indicator disappears and the VTR stops recording temporarily (recording standby mode). To resume recording, press the VTR button again.

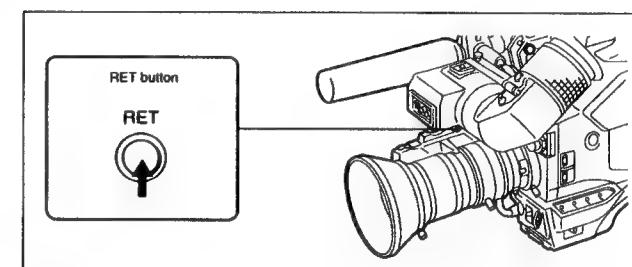
#### After shooting

Set the POWER switch on the camera and VTR to OFF.

## Basic Shooting/Recording

### Monitoring the image during recording

During recording, the image shot with the camera is displayed on the viewfinder. If you press the RET button on the lens, the viewfinder displays the image to be recorded on the VTR (return video\*) while the button is being pressed. The display returns to the image of the camera when you release the button.



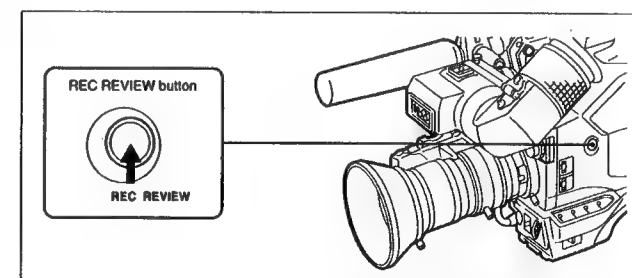
Monitoring the return video using the RET button

#### Note

This function does not operate with some VTRs.

### Checking the last portion of the recording

You can monitor in the viewfinder the last few seconds of the tape you have just recorded.



Checking the recorded portion using the REC REVIEW button

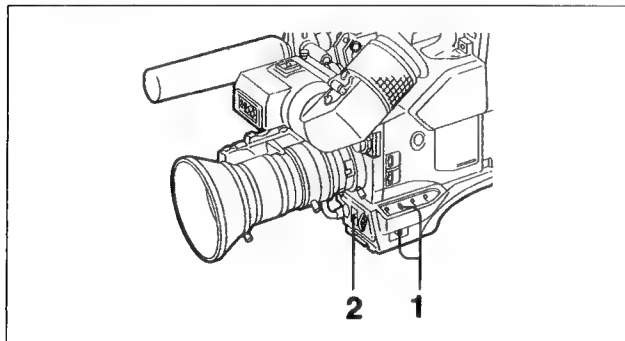
After making the VTR pause by pressing the VTR button, press the REC REVIEW button on the camera. The last few seconds before the VTR pauses are rewound automatically, and the viewfinder displays the played back image. When the VTR finishes playback, the VTR returns to the recording standby mode.

#### Note

This function does not operate with some VTRs.

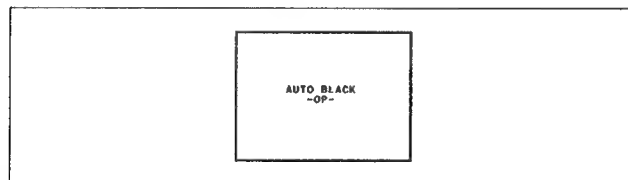
## Adjusting the Black Balance

Adjust the black balance when the camera has not been used for a long period of time, or when the temperature has suddenly changed. The adjusted black balance value is retained in the memory of the camera and normally you do not need to readjust it even if you turn off the camera power or the lighting conditions change. When the black balance is adjusted, the black set\* is also adjusted automatically.



Black balance adjustment

- 1 Set the POWER switch to ON SAVE, and OUTPUT switch to CAM.
- 2 Flip the AUTO W/B BAL. switch to the BLK position.  
The iris closes automatically and the black balance is adjusted automatically. During the adjustment, "AUTO BLACK -OP-" appears on the viewfinder screen.



Viewfinder display during black balance adjustment

A few seconds later, "AUTO BLACK -OK-" appears on the viewfinder screen, when adjustment is complete. The adjustment value is automatically retained in the memory.

### Note

When the W/B BALANCE switch on the camera control unit is set to MANUAL, you cannot adjust the black balance from the camera.

## Adjusting the Black Balance

### If the black balance cannot be adjusted

"AUTO BLACK -NG-" appears on the viewfinder screen. Readjust the black balance after you take the appropriate measures.

#### Error messages for the black balance adjustment

Error message	Meaning and countermeasures
AUTO BLACK -NG- : IRIS NOT CLOSED TRY AGAIN	The iris was not closed during the black balance adjustment. Check the lens and its connections. If the black balance still cannot be adjusted, call your Sony dealer.
AUTO BLACK -NG- : ?? TRY AGAIN	The iris was opened during black balance adjustment, or a hardware error occurred. Close the iris and try the adjustment again. If the black balance still cannot be adjusted, call your Sony dealer.
BARS	The color bar signal is output. Set the OUTPUT switch to CAM.

### About the Iris after the adjustment

The iris of the lens automatically closes during black balance adjustment. If the iris selector is set to M (manual), the iris remains closed after the adjustment. Therefore, open the iris before shooting.

### Readjustment of the black balance

Readjust the black balance if:

- "MEMORY NG" appears on the viewfinder screen
- the unit has not been used for a long time
- the ambient temperature has changed considerably.

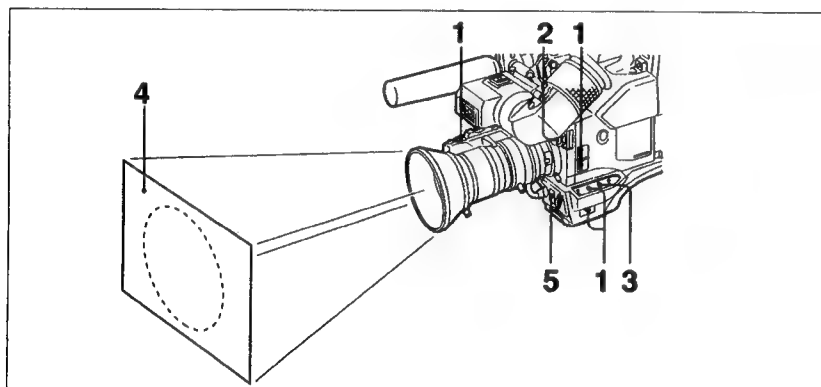


## Adjusting the White Balance

The white balance should be adjusted so that a white object is reproduced as white and life-like color is obtained. The white balance changes depending on the lighting conditions. When the lighting conditions change, readjust the white balance.

### Memorizing the Correct White Balance Values

You can store the adjusted white balance values in the two memories of "A" and "B". The values are retained even if the power of the unit is turned off. Once the values are memorized, you can recall either of them by setting the WHITE BAL selector to A or B. It is convenient when you shoot under two different lighting conditions.

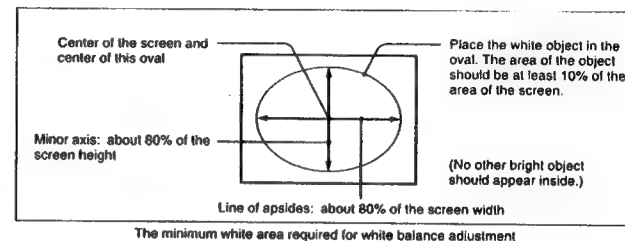


Memorizing the white balance value

- 1 Set the positions of the switches/selectors on the camera as follows:
  - Set the POWER switch to ON SAVE.
  - Set the OUTPUT switch to CAM.
  - Set the iris selector on the lens to A (auto).
  - Set the ATW switch to OFF.
- 2 Select the position of the FILTER selector on the camera according to the lighting conditions.
- 3 Set the WHITE BAL selector to A or B.

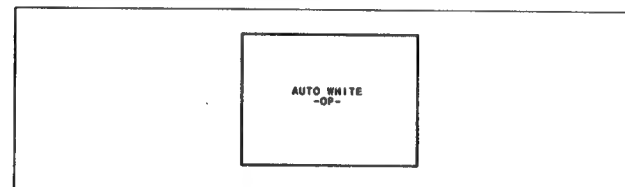
## Adjusting the White Balance

- 4 Zoom up on a white object such as a white cloth or paper under the same lighting conditions as those of the scene to be shot. The minimum white area required for adjustment is as follows:



The minimum white area required for white balance adjustment

- 5 Flip the AUTO W/B BAL switch to WHT. White balance is automatically adjusted. During the adjustment, "AUTO WHITE -OP-" appears on the viewfinder screen.



Viewfinder display during white balance adjustment

When the display changes to "AUTO WHITE -OK-" after a few seconds, the adjustment is complete. The camera automatically stores the adjusted white balance value in the specified memory, A or B.

If you want to set the white balance value for another lighting condition, repeat procedures 2 through 4. The camera can memorize two white balance values, A and B.

### Recalling the white balance value from the memory

Set the WHITE BAL selector to A or B before you shoot with the camera. The white balance value in the memory is automatically recalled. Even if the power is turned off, the camera holds the stored white balance value in memory for about 10 years unless the white balance is readjusted.

**If an adjustment error occurs**

If the unit fails to adjust the white balance, "AUTO WHITE -NG-" appears on the viewfinder screen.

Readjust the white balance after taking the appropriate measures indicated in the table below.

Error messages for the white balance adjustment

Error message	Meaning and countermeasures
AUTO WHITE -NG- LOW LIGHT TRY AGAIN	Light is insufficient. Increase illumination, open the iris or raise the video output level with the GAIN selector. Check also the FILTER selector setting. Try the adjustment again after taking the countermeasure.
AUTO WHITE -NG- : ?? TRY AGAIN	The object is not white or light is excessive. Replace with a white object. Decrease illumination, close the iris or reduce the video output level with the GAIN selector. Check also the FILTER selector setting. Try the adjustment again after taking the countermeasure.
AUTO WHITE -NG- : C. TEMP LOW CHG. FILTER TRY AGAIN	Color temperature is too low. Set the FILTER selector to 1 and try the adjustment again.
AUTO WHITE -NG- : C. TEMP HI CHG. FILTER TRY AGAIN	Color temperature is too high. Set the FILTER selector to 3 or 4 and try the adjustment again.
WHITE: PRESET	The WHITE BAL selector is set to PRE. Set the WHITE BAL selector to A or B.
BARS	The color bar signal is output. Set the OUTPUT switch to CAM.


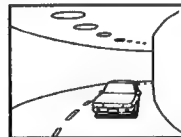

**Adjusting the White Balance****Using a Preset White Balance Value**

The unit provides two preset white balance values. When you have no time to adjust the white balance, the preset values can provide an approximate adjustment for immediate shooting.

In some cases under special lighting conditions, using the preset values is more effective than adjusting the white balance due to the characteristics of the human eye.

- 1** Set the WHITE BAL selector to PRE.
- 2** Set the FILTER selector to position 1 for the 3200 K white balance.  
Set it to 3 for the 5600 K white balance.

**Situations where the preset white balance is effective**

Situations where the preset white balance is effective	
Lighting conditions	Preset value
<ul style="list-style-type: none"> <li>Situations where lighting conditions frequently change, such as at a party.</li> </ul> 	3200 K (FILTER selector position 1)
<ul style="list-style-type: none"> <li>Shooting under a sodium lamp in a tunnel.</li> </ul> 	
<ul style="list-style-type: none"> <li>Shooting sunrise or sunset outdoors.</li> </ul> 	5600 K (FILTER selector position 3)

If you want to reproduce a scene more precisely, adjust the R and B signal levels using the RM-M7G remote control unit.

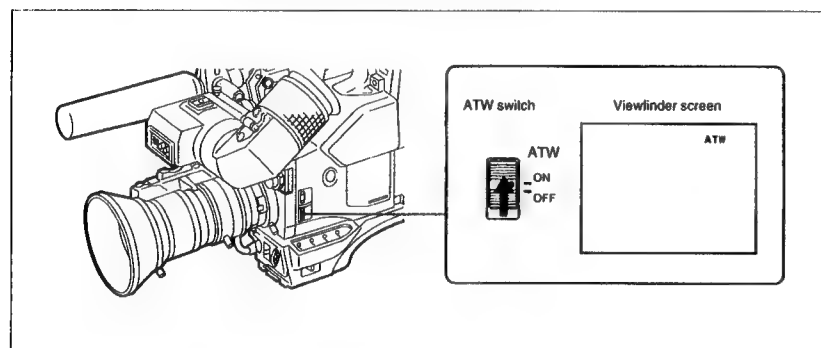


## Using the ATW (Auto Tracing White Balance) Function

When you use the ATW function, the white balance varies automatically according to changes in the lighting conditions.

### Note

The ATW function cannot provide perfect white balance adjustment. If you want to record a color of a subject correctly, we recommend that you to adjust the white balance with the AUTO W/B BAL switch.



Using the ATW function

### Using the ATW function

Set the ATW switch to ON. The "ATW" display appears on the viewfinder screen. The white balance is held at its optimum level during recording, according to the changes in the color temperature of the subject.

### Canceling the ATW function

Set the ATW switch to OFF. "ATW" disappears from the viewfinder screen.

### If an error occurs

If the unit fails to obtain the optimum value with the ATW function, one of the following messages appears on the viewfinder screen. Take the measures listed in the table below.

Error messages for the ATW function

Error message	Meaning and countermeasures
C. TEMP LOW	Color temperature is too low. Set the FILTER selector to 1.
C. TEMP HI	Color temperature is too high. Set the FILTER selector to 3 or 4.

## Adjusting the White Balance

### Tips on the White Balance Adjustment

#### Light source and color temperature

In order to obtain an image with correct color, it is necessary to adjust the white balance according to the light source which lights the subject. The color of the light is determined by the temperature of the object radiating the light, and is expressed by the unit "K." As the temperature increases, the color of the light changes to blue, and as it decreases, to red.

This unit is adjusted at the factory so that the correct colors are obtained when a video light (halogen lamp, color temperature 3200 K) is used. When using the unit under different lighting conditions, adjustment is required. Before white balance adjustment, set the FILTER selector to select a lighting condition close to the current light. Use the following table for the adjustment of the color temperature.

Light source and color temperature		
Light source		Color temperature (K)
Natural light	Lighting	
Clear sky		10,000
Slightly overcast		Blue light 8,000
Cloudy, rainy		7,000
	Fluorescent lamp (daylight)	6,000
		White light 5,000
Direct sunlight, midday	Mercury lamp	
	Fluorescent lamp (white)	
1 hour before sunset or after sunrise		4,000
	Fluorescent lamp (off white)	3,500
	Studio lamp	3,200
	Halogen lamp, video light	Yellow light 3,000
30 min. before sunset or after sunrise	Tungsten lamp	2,500
	Sodium lamp (lights inside a tunnel)	
Sunset or sunrise	Candle light	Red light 2,000

# Zooming

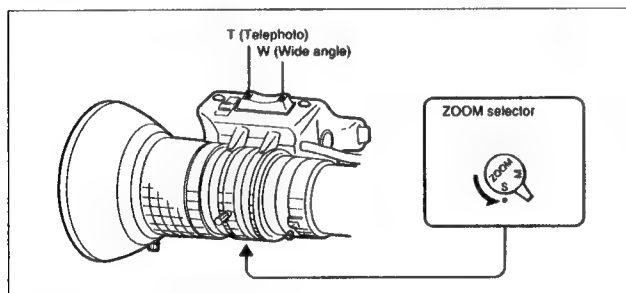
By using the motorized zoom, or by zooming manually, you can make the size of the subject large (telephoto shot) or small (wide-angle shot), without changing the position of the camera.

With the MACRO function, you can do close-ups of a small subject or very close subject.

This section explains zooming and close-ups, using the VCL-916BYA zoom lens supplied with the DXC-537AK/537APK as an example.

## Motorized Zooming


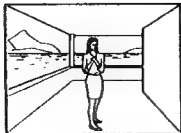
Motorized zooming allows you to change the size of an object in the viewfinder screen smoothly.



Motorized zooming

Set the ZOOM selector to S (servo). Press all the way down on the motorized zoom switch to zoom faster, and press lightly to zoom slowly.

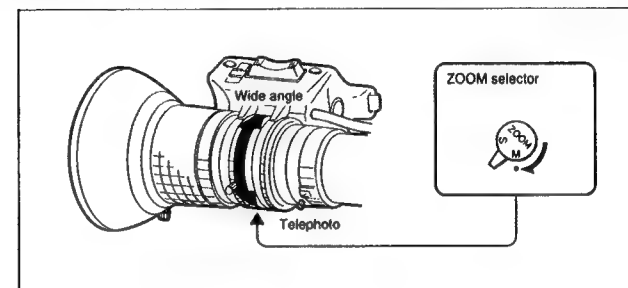
Zooming in/out operation

Operation	Motorized zoom switch
To zoom in 	Press the T (Telephoto) side.
To zoom out 	Press the W (Wide) side.

## Zooming

### Manual Zooming

Manual zooming enables more precise control over the zooming speed.



Manual zooming

Set the ZOOM selector to M, and rotate the zoom lever. By changing the speed of rotating the zoom lever, you can vary the zooming speed.

Going to wide angle (zoom in)	Rotate the zoom lever upward.
Going to telephoto (zoom out)	Rotate it downward.

### Tips on zooming

#### Focusing

If the object is in focus in the telephoto position, it will remain in focus when you zoom out to wide angle.

#### For smoother zooming

We recommend that you place the unit on a tripod. Camera shaking is especially conspicuous when zooming in.

#### Positioning the object in the center of the screen

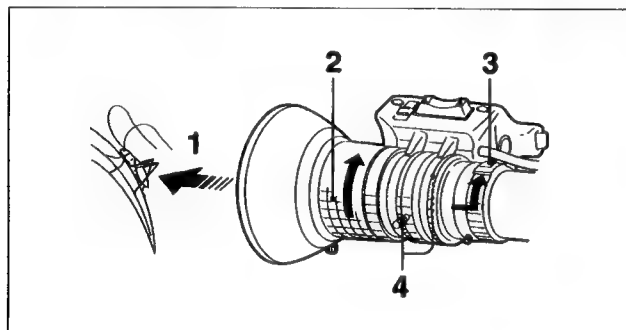
To zoom in, compose the scene so that the object is at the center of the screen at the telephoto position, and set to the wide angle position. Then start to zoom in. Make sure that the object stays at the center of the screen while you are zooming.





## Close-ups

Use the MACRO function when the distance from the lens to the object is less than 1 meter (less than 0.9 meter for VCL-916BYA). The minimum distance is 10 mm (wide angle position,  $f = 9$  mm) in the macro zoom position.



Close-ups

- 1** Bring the lens closer to the subject until the desired image size is obtained.
- 2** Set the focus ring to the minimum distance position (0.9 for VCL-916BYA).
- 3** While sliding the MACRO button toward the camera head, rotate the MACRO ring in the direction of the arrow (upward) until it stops.
- 4** Set the ZOOM selector to M and rotate the manual zoom lever to focus.

### After close-ups

Rotate the MACRO ring in the opposite direction of the arrow (downward) until it stops.

### To decrease the size of the subject

After procedures 1 through 4, rotate the MACRO ring in the opposite direction of the arrow a little, and focus again with the zoom lever.

### Tips on close-ups

The depth of field is narrow when doing the close-ups. Make sure to adjust the diopter and focus carefully.

## Chapter 4 Shooting — Advanced Operations

This chapter explains in detail how to choose camera settings, according to each shooting condition.

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Adjusting the Iris .....	4-2
Manual Iris Adjustment with the Zebra Pattern .....	4-4
<b>Selecting the Gain</b> .....	4-5
Increasing the Gain in Three Increments with the GAIN Selector .....	4-5
Increasing the Gain to 30 dB with the TURBO GAIN Switch .....	4-6
<b>Shooting Various Subjects Under Different Lighting Conditions (Switch Settings)</b> .....	4-7
Functions of Switches/Selectors .....	4-7
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Making and Memorizing a Title .....	4-21
Recording a Title .....	4-23

## Adjusting the Exposure

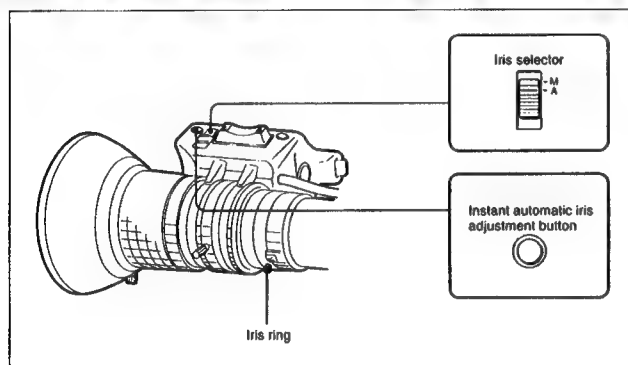
There are three methods of exposure adjustment.

- Automatic iris adjustment
- Manual iris adjustment
- Temporary automatic iris adjustment

You can set the iris to adjust itself automatically according to the brightness of the object being shot. When you need a special effect, adjust it manually.

Use the instant automatic iris adjustment setting for temporary automatic adjustment of the iris during the manual adjustment.

## Adjusting the Iris



Adjusting the iris

### Adjusting the Iris automatically

Set the iris selector to A (auto). The unit automatically adjusts the iris for the appropriate exposure according to the brightness of the subject to obtain an image with the appropriate brightness.

### Adjusting the Iris manually

Set the iris selector to M (manual), and adjust the iris manually by rotating the iris ring. Use the following table as a reference.

Manual iris adjustment

Condition	Adjustment of Iris
The background is so bright that the subject becomes a silhouette. (Backlighting)	Open the iris slightly.
The subject is too bright as compared with the background. (Spot-lit in the dark.)	Close the iris slightly.
Special effect is desired.	Adjust according to the situation.

### Activating the automatic iris adjustment instantly

You can adjust the iris automatically during manual iris adjustment, by holding down the instant automatic iris adjustment button. Release the button when the adjustment is made. The automatically adjusted iris is retained as is. When changing the iris, adjust it manually by rotating the iris ring.

#### Example of effective use

If the lighting level of the scene to be shot constantly changes due to strobe lights or other lights, adjust the iris manually first. Whenever the brightness seems to have changed, press the instant automatic iris adjustment button.

### Changing the reference level of the automatic iris adjustment

In automatic iris adjustment, a reference level is determined by detecting the peak value and average value of the brightness of the subject. Based on the reference level, the iris is automatically adjusted. Therefore, in special lighting conditions such as backlighting, it is better to change the reference level in order to obtain the proper exposure.

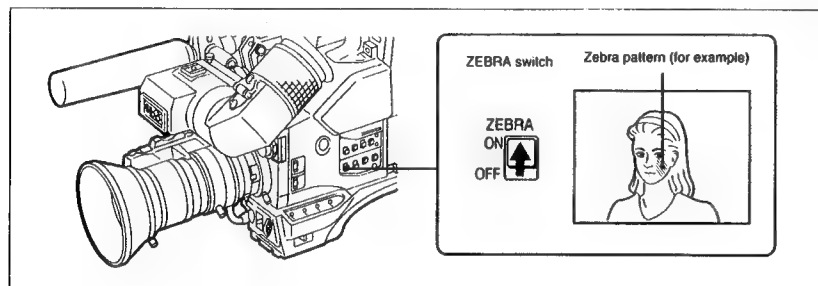
There are two methods of changing the reference level.

- Set the A. IRIS MODE selector on the camera to the appropriate position. (see page 4-7)
- Change the setting of A. IRIS on the menu display in the viewfinder. (see page 4-11)

## Adjusting the Exposure

### Manual Iris Adjustment with the Zebra Pattern\*

The zebra pattern helps manual iris adjustment by indicating those areas of the picture where the video output level is about 70% to 80% "IRE" (for NTSC) or 490 mV to 560 mV (for PAL). This pattern acts as a guide when you manually adjust the iris.



Displaying the zebra pattern

#### Displaying the zebra pattern

Set the ZEBRA switch to ON.

##### When shooting a person

Adjust the iris manually so that the zebra pattern appears on the bright portions of the face (forehead, cheeks, etc.).

##### When shooting a subject other than a person

Adjust the iris manually so that the zebra pattern appears on the part to be emphasized.

##### When you have no need for the zebra pattern

Set the ZEBRA switch to OFF.

1) 70% to 80%

"%" is a unit to express the brightness of an image. The brightness of an image shot with a camera is expressed as ranging from 0 to 100%.

Around 75% is the level where the colors of the subject are reproduced most faithfully.

## Selecting the Gain

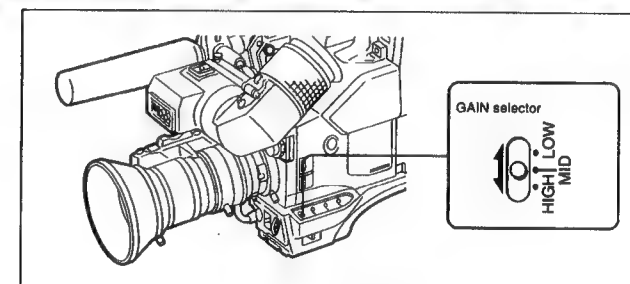
If you cannot get a clear picture because of insufficient light, increase the gain to brighten the picture.

There are two methods to increase the gain.

- Increasing the gain in three increments, LOW, MID and HIGH, using the GAIN selector.
- Increasing the gain to 30 dB using the TURBO GAIN switch.

In an ordinary operation, the GAIN selector is used. The TURBO GAIN switch is used when the lighting suddenly becomes dark.

### Increasing the Gain in Three Increments with the GAIN Selector



Setting the GAIN selector

Set the GAIN selector to LOW, MID or HIGH. The selected gain level is displayed on the viewfinder screen for a few seconds. The following table shows the factory-preset gain level settings.

Factory-preset gain level settings

Position of GAIN selector	Preset gain
LOW	0 dB (no gain increase)
MID	9 dB
HIGH	18 dB

Set the GAIN selector to LOW (0 dB) in ordinary use.

#### Note

You cannot change the gain with the GAIN selector while the TURBO GAIN switch is set to ON.

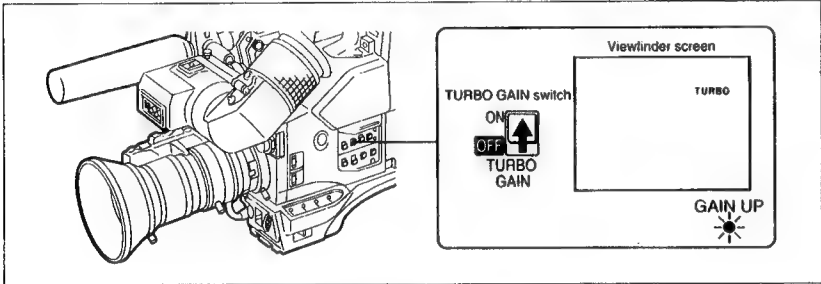
### Changing the gain level settings

The gain level for each position of the GAIN selector can be set within a range of -3 dB to 24 dB on the menu display.

For details, see "Changing the Settings in the Menu" on page 4-9.

Selecting the Gain

Increasing the Gain to 30 dB with the TURBO GAIN Switch



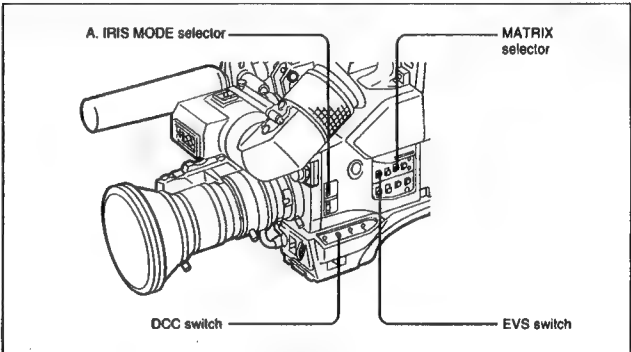
Increasing the gain to 30 dB with the TURBO GAIN switch

Set the TURBO GAIN switch to ON. The gain increases to 30 dB, and "TURBO" appears on the viewfinder screen and the GAIN UP indicator lights. Set the switch back to OFF after shooting. "TURBO" disappears from the viewfinder screen, and the gain returns to the previous setting.

Shooting Various Subjects Under Different Lighting Conditions (Switch Settings)

This unit is equipped with various functions to make possible shooting corresponding to the lighting condition and subject. This section explains how to use the switches/selectors for those functions. Make use of it to cope with the conditions under which you wish to shoot.

Functions of Switches/Selectors



Switches/selectors

Switches/selectors and their purposes

Switch/selector	Purpose
<div>A. IRIS MODE selector</div> <div></div>	Changes the reference level of the automatic iris adjustment according to the lighting conditions. <b>STD:</b> Standard position <b>BACK L:</b> When the subject is backlit. The average of the brightness is adjusted so that the subject appears brightly. <b>SPOT L:</b> When the subject is spotlighted. The peak level is adjusted so that the subject appears properly.
<div>EVS switch</div> <div></div>	<b>ON:</b> Activates the EVS (Enhanced Vertical Definition system) function to increase the vertical resolution from 400 lines to 450 lines (NTSC) or from 450 lines to 530 lines (PAL). <b>OFF:</b> Standard position
<div>MATRIX selector</div> <div></div>	Activates the color matrix function to change the color tone of the image. <b>STD:</b> Standard position <b>H. SAT:</b> Enhances the chroma. <b>FL:</b> Reproduces natural colors under the fluorescent light.
<div>DCC switch</div> <div></div>	<b>ON:</b> Standard position Activates the DCC (Dynamic Contrast Control) function to regain the color of a subject that has been whited out by bright light. <b>OFF:</b> Uses the whitening phenomenon in a highlighted scene to obtain a special effect.

## Shooting Various Subjects Under Different Lighting Conditions (Switch Settings)

### Switch Settings Corresponding to the Shooting Conditions

Switch settings corresponding to the shooting conditions

Shooting conditions	Switch/selector position	Effects
The subject becomes a silhouette because the background is too bright.	Set the A. IRIS MODE selector to BACK L.	Prevents the subject from becoming a silhouette.
The subject is spotlighted.	Set the A. IRIS MODE selector to SPOT L.	Prevents the person's face or clothes from becoming white.
A higher vertical resolution is needed, when shooting the eye lines of a woman, etc.	Set the EVS switch to ON.	The vertical resolution increases.
Shooting a wedding or similar elaborate scene	Set the MATRIX selector to H. SAT.	The color is reproduced vividly.
Shooting under a fluorescent lamp (which has no color)	Set the MATRIX selector to FL.	Prevents the image from getting bluish and the image is reproduced in natural colors.
Using the whitening phenomenon as a special effect. (For example, shooting a person walking in a desert with backlighting.)	Set the DCC switch to OFF.	The person seems to be walking in a white background.

## Shooting with Special Effects (Menu Operation)

The unit is equipped with convenient functions which enable the cameraman to express minute image impressions, such as by opening the iris a little excessively too much, sharpening detail and increasing contrast. Make the settings on the menu display.

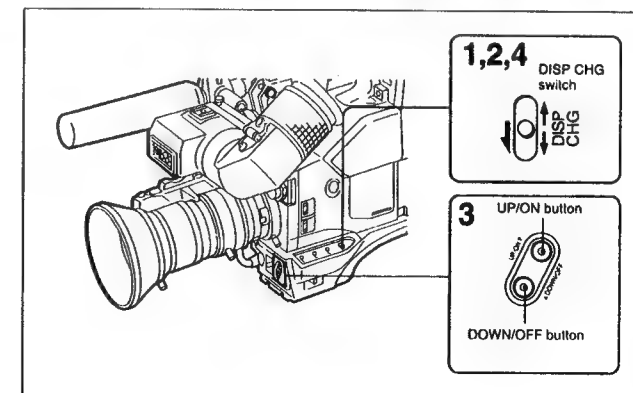
### Items able to set on the menu display

Selectable items, their meanings and purposes

Menu item	Meaning	Purpose
A. IRIS	Sets the reference level of the automatic iris adjustment.	To get a special effect by slightly over-exposing or under-exposing.
DETAIL	Sets the detail emphasis level.	To emphasize the details so that it can be dubbed by a VTR for consumer use without deterioration.
M.PED	Sets the master pedestal level to change the contrast of the image.	To make the contrast of the image higher or lower.
SHUTTER/CLS	Sets the shutter speed or scanning frequency of Clear Scan.	To shoot a fast-moving object or computer screen.
GAIN	Sets the gain level in each position of the GAIN selector.	To set the gain level for frequently used lighting conditions so that they can be obtained at a touch.

## Changing the Settings in the Menu

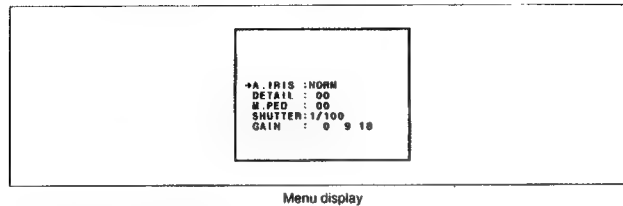
Display the menu on the viewfinder screen and change the settings. The procedures are the same for all the menu display items.



Changing the settings in the menu

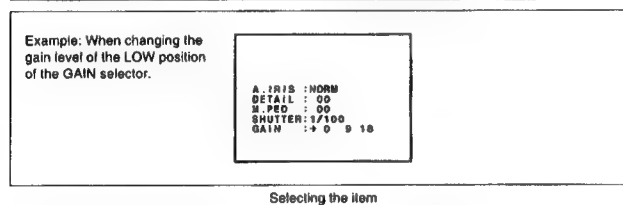
- 1 Push the DISP CHG switch several times until the following display appears on the viewfinder screen.

## Shooting with Special Effects (Menu Operation)



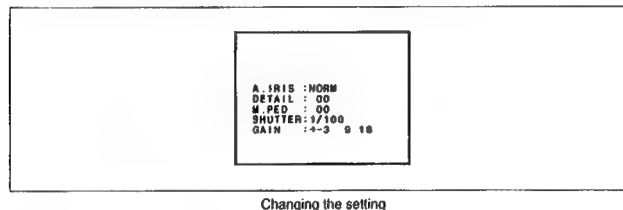
- 2** Push the DISP CHG switch repeatedly until the cursor comes to the left of the item to be adjusted.

If you push the DISP CHG switch downward	the cursor moves down.
If you push it upward	the cursor moves up.

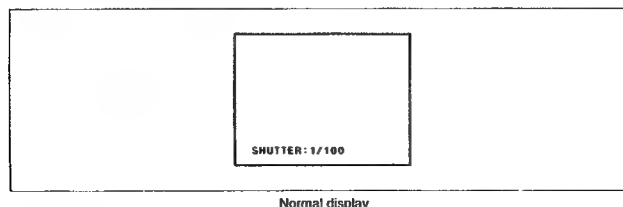


- 3** Change the setting by pressing the UP/ON and DOWN/OFF buttons.

If you press the UP/ON button	the value increases.
If you press the DOWN/OFF button	the value decreases.
If you press them simultaneously	the setting returns to the standard value.



- 4** Push the DISP CHG switch several times until the normal display appears on the viewfinder screen.



The set values are retained even if the power to the unit is shut off.

## Menu Display Items and Setting Values

Menu display items, their meanings and setting ranges

Menu Item	Meaning	Setting range
A.IRIS	Setting the reference level of automatic iris adjustment	<p>–1.0, –0.5, NORM (standard value), 0.5, 1.0</p> <ul style="list-style-type: none"> <li>As the value gets smaller, the iris closes, and as it gets bigger, the iris opens.</li> </ul>
DETAIL	Setting the detail emphasis level	<p>–99 to 00 (standard value) to +99</p> <ul style="list-style-type: none"> <li>The smaller the value, the softer the detail is, and the larger it is, the sharper.</li> </ul>
M.PED	Setting the master pedestal level	<p>MIN, –30 to 00 (standard value) to +30, MAX</p> <ul style="list-style-type: none"> <li>The smaller the value, the darker the dark portion of the image becomes and the higher the contrast becomes. The larger the value is, the brighter the dark portion of the image gets and the lower the contrast becomes.</li> </ul>
SHUTTER	Setting the shutter speed (when the SHUTTER switch is set to ON)	<p>1/100 for NTSC or 1/80 for PAL (standard value), 1/250, 1/500, 1/1000, 1/2000 second</p> <ul style="list-style-type: none"> <li>The smaller the denominator of the value is, the slower the shutter speed is, and the larger, the faster.</li> </ul> <p>For details, see page 4-12.</p>
CLS	Setting the scanning frequency of Clear Scan (when the SHUTTER switch is set to CLS)	<p>60.4 to 200.3 Hz for NTSC 50.3 to 201.4 Hz for PAL</p> <ul style="list-style-type: none"> <li>The value indicates the scanning frequency of the Clear Scan. Set it while watching the image on a personal computer screen on the monitor so that the noise is the least.</li> </ul> <p>For details, see page 4-15.</p>
GAIN	Setting the gain level in each position of the GAIN selector	<p>–3, 0, 3, 6, 9, 12, 18, 24 dB (standard values: 0, 9, 18)</p> <ul style="list-style-type: none"> <li>The figures indicate each position of LOW, MID, and HIGH of the GAIN selector from left to right. Push the DISP CHG switch to move the cursor to the left of the figure to be changed, and select by pushing the UP/ON and DOWN/OFF buttons.</li> <li>You can set the three values only in the range of LOW &lt; MID &lt; HIGH.</li> </ul>



## Shooting with Special Effects (Menu Operation)

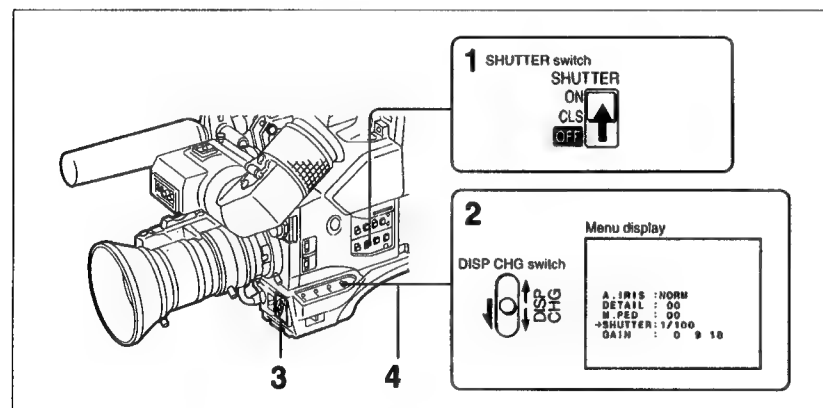
### Using a High Shutter Speed\*

If you increase the shutter speed, a fast-moving object can be shot with reduced blurriness. The flickering which occurs when shooting under the fluorescent lamp can also be reduced by changing the shutter speed. The shutter speed is factory-set to 1/100 for NTSC and 1/60 for PAL. You can select a shutter speed from the five settings, which are in the following order:

NTSC: 1/100, 1/250, 1/500, 1/1000, 1/2000

PAL: 1/60, 1/250, 1/500, 1/1000, 1/2000

### Setting the shutter speed



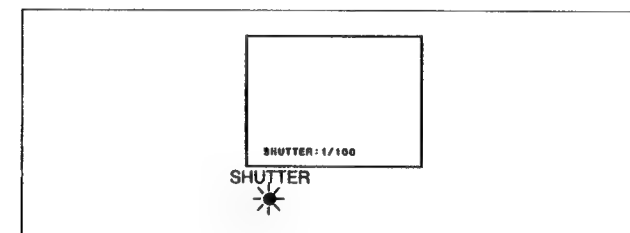
Setting the shutter speed

- 1 Set the SHUTTER switch to ON.  
The shutter speed is now selectable.
- 2 Push the DISP CHG switch several times until the menu display shown above appears on the viewfinder screen. Place the cursor to the left of SHUTTER.
- 3 Select the shutter speed by pressing the UP/ON or DOWN/OFF button. Settings change in the following sequence each time the UP/ON button is pressed.  
1/100 for NTSC, 1/60 for PAL → 1/250 → 1/500 → 1/1000 → 1/2000 (factory setting)

If you press the DOWN/OFF button, the setting changes in the reverse sequence.  
If the UP/ON and DOWN/OFF buttons are pressed simultaneously, the setting returns to 1/100 for NTSC, or 1/60 for PAL.

- 4 Push the DISP CHG switch several times until the normal viewfinder screen appears.

The selected speed appears on the viewfinder screen and the SHUTTER indicator lights.



Shutter speed display

The selected shutter speed is retained in the camera memory even if the power of the camera is turned off, unless it is readjusted.

### After shooting

Set the SHUTTER switch to OFF. The SHUTTER display in the viewfinder screen disappears.

If you set the SHUTTER switch to ON again, the shutter speed changes to the speed selected in the menu display.

### Notes on using the high shutter speed

- If the EVS switch on the camera is set to ON, you cannot change the shutter speed.
- The faster the shutter speed is, the darker the image is. Check the brightness on the viewfinder, and increase the lighting or adjust the iris if necessary.
- When you shoot a bright object with the fast shutter speed, the vertical smear might be obvious.

## Shooting with Special Effects (Menu Operation)

### Appropriate shutter speed to capture the movement of a subject

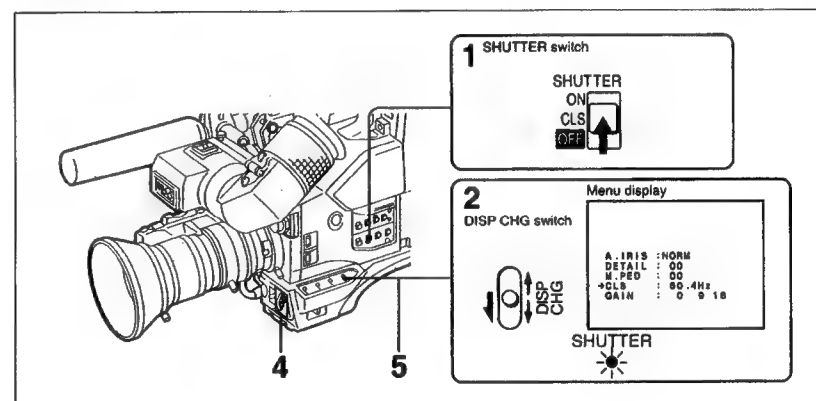
Appropriate shutter speed for each subject

Subject	Shutter speed
• Skiing	1/2000
• Moment of diving into water	1/1000
• Motor sports (straight)	
• Flow of water fall	
• Flapping wings of a bird	
• Facial expressions of athletes in competition	
• Skating, jumping, surfing	1/500
• Movement of a butterfly	
• Human movement	1/250
• Judo, karate, boxing	
• Athletic meeting, marathon	
• Motor sports (corners)	
• Gliding birds	
• Roller coaster on a overcast day	
• Scenery shot from a moving car or train	
• Stroboscopic shooting of a stationary animal	
• Flowers swinging in the wind	1/100 (for NTSC) or 1/60 (for PAL)
• Indoor sports	
• Mountains covered with snow or sunny seashore in the mid summer (replaces ND2 filter)	
• Shooting under a fluorescent lamp in an area where the electricity frequency is 50 Hz (for NTSC) or 60 Hz (for PAL).	

## Shooting a CRT such as a Computer Screen (Clear Scan Function)

When you shoot the screen of a computer or projector, horizontal noise bands appear on the image. The noise occurs because the scanning frequency of the monitor screen differs from that of the camera. The Clear Scan function decreases the horizontal noise bands.

### Decreasing the horizontal noise bands



Using the Clear Scan function

- 1 Set the SHUTTER switch to CLS.
- 2 Push the DISP CHG switch several times until the display shown above appears on the viewfinder screen. Place the cursor to the left of CLS.
- 3 Display the screen of a computer on the monitor.
- 4 While looking at the monitor, press the UP/ON or DOWN/OFF button until the frequency with the least noise is selected.  
The settings change in the following range and sequence each time you press the UP/ON button.  
NTSC: 60.4 Hz (factory setting) to 200.3 Hz  
PAL: 50.3 Hz (factory setting) to 201.4 Hz  
If you press the DOWN/OFF button, the setting changes in the reverse sequence.  
If you press the UP/ON and DOWN/OFF buttons simultaneously, the setting returns to 60.4 Hz for NTSC or 50.3 Hz for PAL.



## Shooting with Special Effects (Menu Operation)

- 5** Push the DISP CHG switch several times until the normal viewfinder screen appears.

The frequency of the Clear Scan is retained in the camera memory even if the power is turned off, unless it is readjusted.

### After shooting

Set the SHUTTER switch to OFF. The Clear Scan function is now canceled. If you set the SHUTTER switch to CLS again, the Clear Scan function operates at the frequency selected in the menu display.

### Note

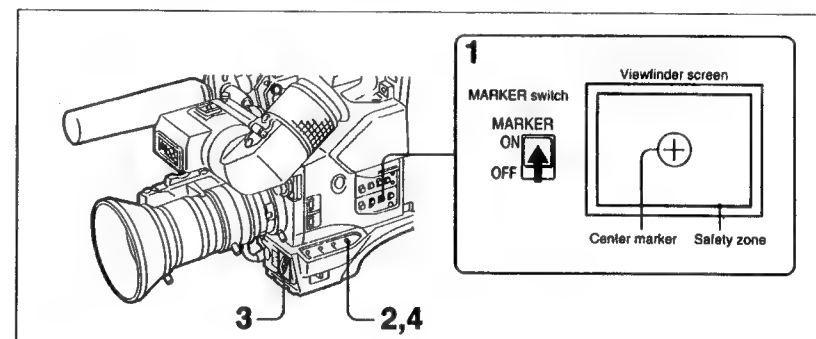
As the vertical scanning frequency differs according to the type of computer, the horizontal noise bands may not be completely eliminated. Further, please note that the frequency also changes according to the software used.

## Displaying the Marker in the Viewfinder

The safety zone (effective screen frame) and center marker\* can be displayed on the viewfinder screen.

You can select the marker display as follows:

- Display both the safety zone and center marker.
- Display the safety zone only.
- The size of the safety zone can be set to either 90% or 80% of the screen area.



Displaying the marker in the viewfinder

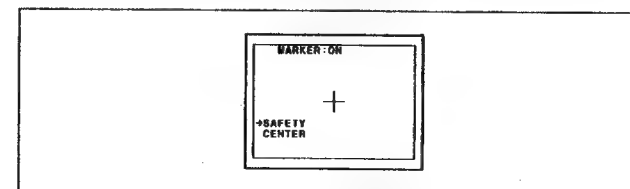
### Displaying the marker in the viewfinder

Set the MARKER switch to ON. The safety zone and center marker are displayed. If you set the MARKER switch to OFF, the safety zone and center marker disappear.

### Changing the safety zone size

Generally, the image we see on the video monitor is not the whole image shot with the camera. About 75 to 90% of the image shot is displayed on the monitor so that a gap does not appear in the surrounding area even if the screen becomes smaller due to a change in the voltage. This is called over scan, and the over scan amount varies according to the monitor. Set the safety zone size according to the monitor to be used.

- 1 Set the MARKER switch to ON.
- 2 Push the DISP CHG switch several times until the cursor comes to the left of SAFETY on the viewfinder screen. (If you advance too far, push the DISP CHG switch upward to return the position of the arrow.)



Marker setting display

## Displaying the Marker in the Viewfinder

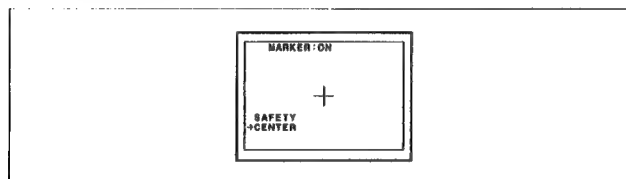
- 3 Press the UP/ON or DOWN/OFF button.

If you press the UP/ON button	the safety zone size changes to 90%.
If you press the DOWN/OFF button	it changes to 80%.

- 4 Push the DISP CHG switch several times until the normal viewfinder display appears.

## Canceling the center marker

- 1 Set the MARKER switch to ON.
- 2 Push the DISP CHG switch several times until the cursor comes to the left of CENTER on the viewfinder screen.



Marker setting display

- 3 Press the UP/ON or DOWN/OFF button.

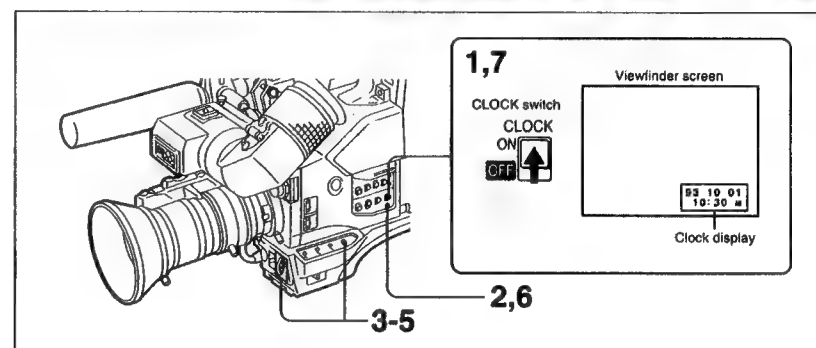
If you press the UP/ON button	the center marker appears.
If you press the DOWN/OFF button	it disappears.

- 4 Push the DISP CHG switch several times until the normal viewfinder display appears.

## Recording the Date and Time of Shooting

Setting the clock built in the unit, you can record the date and time of shooting.

## Setting the Clock



Setting the clock

- Set the CLOCK switch to ON.  
The clock display appears on the viewfinder screen.
- Press the SET button.  
The year display flashes.
- Set the date and the time using the DISP CHG, UP/ON and DOWN/OFF buttons.
  - Push the DISP CHG switch downward or upward so that the item to be set flashes.
  - Change the figure by pressing the UP/ON button.  
(If you advance too far, reset it by pressing the UP/ON and DOWN/OFF buttons simultaneously, and set it again by pressing the UP/ON button.)
  - Repeat ① and ② and, set in order of the year, month, day, hour and minute.
- Select the 12-hour system or 24-hour system.
  - Push the DISP CHG switch. AM/PM (or ■) flashes.
  - Each time you press the UP/ON button, the 12-hour system (AM/PM) and 24-hour system (with ■ indicator) is selected alternately.
- Select the order for displaying the year and date. The display of the year and date changes as follows at each push on the DISP CHG switch.  
"YY" means year, "MM" means month, and "DD" means day.
  - Year, month, day (example: 93 05 11)
  - Month, day, year (example: 05 11 93)
  - Day, month, year (example: 11 05 93)



## Recording the Date and Time of Shooting

- 6 Press the SET button at a timecast.  
The clock starts moving from 00 seconds.
- 7 Set the CLOCK switch to OFF to cancel the clock display.

## Recording the Date and Time of Shooting

The date and time of shooting can be recorded over the image.

- 1 Set the CLOCK switch to ON before shooting or during shooting where you want to record the date and time.  
The clock display appears on the viewfinder screen and is output from the camera video output.

- 2 Set the CLOCK switch to OFF to stop recording the date and time.

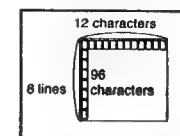
**If the clock display does not appear when the CLOCK switch is set to ON**

The built-in lithium battery may be exhausted. Consult your Sony dealer.

## Recording a Title

Using the character generator built in the unit, you can create a title with letters and numbers in the viewfinder and store it in the memory. You can record them over the image being shot.

A title of up to 8 lines, 96 characters can be memorized.

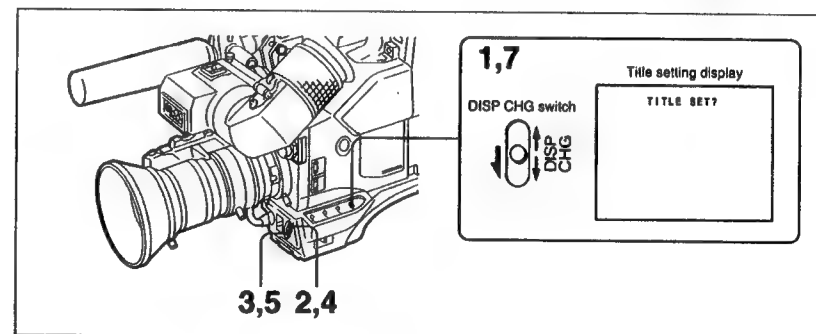


Title display area

## Making and Memorizing a Title

Operating procedures are as follows:

- 1 Make a title and memorize it.
- 2 Recall the title before shooting.
- 3 Start shooting.



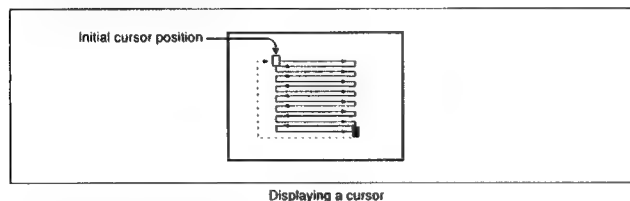
Making and memorizing a title

- 1 Push the DISP CHG switch several times until the above display appears on the viewfinder screen.  
(If you advance too far, press the DISP CHG switch upward to return.)

If a title already exists, it is displayed. (If you want to erase the existing title, press the UP/ON and DOWN/OFF buttons simultaneously.)

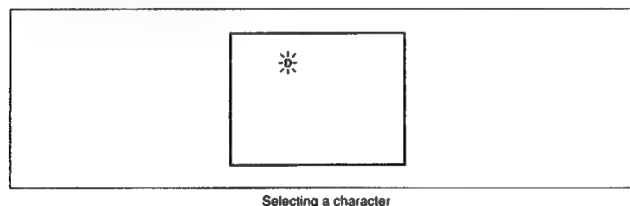
## Recording a Title

- 2 Press the UP/ON button.  
A cursor appears on the display, and you can set the title characters.



- 3 Press the DOWN/OFF button to move the cursor to the position where you want a title. (To reverse the cursor, while holding down the DOWN/OFF button, press the UP/ON button.)  
12 characters can be input on a line, and there are 8 lines, totaling 96 characters.

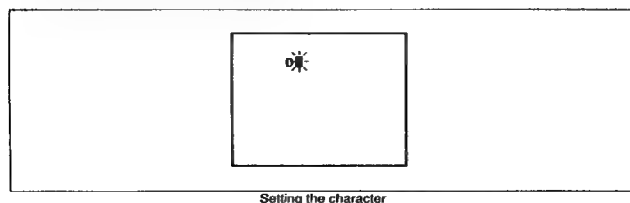
- 4 Press the UP/ON button to display the desired character.  
(To display the characters in the reverse order, press the DOWN/OFF button while pressing the UP/ON button.)



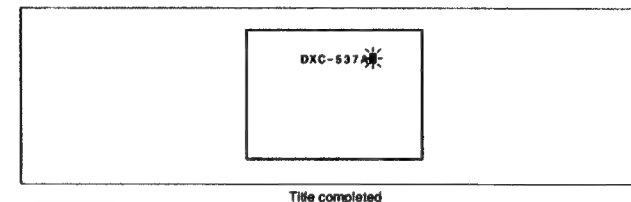
The display changes in the following order each time you press the UP/ON button.



- 5 Set the selected character by pressing the DOWN/OFF button. The cursor moves to the next character position.



- 6 Repeat procedures 4 and 5 to set all the characters.



The set characters remain in the memory even when the title display or the power is turned off.

- 7 After making the title, push the DISP CHG switch so that the normal viewfinder screen appears.

### To replace a character

Make the character you want to replace flash by pressing the DOWN/OFF button in step 3 above, and replace with a new character by pressing the UP/ON button.

## Recording a Title

- 1 Push the DISP CHG switch several times until the title appears on the viewfinder screen.
- 2 Press the UP/ON button once.
- 3 Start shooting.
- 4 To stop recording the title, pause the VTR by pressing the VTR button. Then push the DISP CHG switch to cancel the title display.

### Note on the CCU-M5/M5P

When "TITLE SET; ON" is set using the function switch of the CCU-M5/M5P, set value is not displayed on the viewfinder screen even if a switch such as GAIN switch is turned on or off. And except when the normal viewfinder screen appears, the title display is not displayed even if "TITLE SET; ON" is set.

## Chart of Optional Components and Accessories

The chart below shows the optional components and accessories for the DXC-537A/537AP color video camera. They are introduced on pages 5-4 to 5-10.

## Chapter 5 System Upgrading

This chapter introduces the optional components and accessories for system upgrading, and sample systems for different purposes.

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Microscope Recording System .....	5-13
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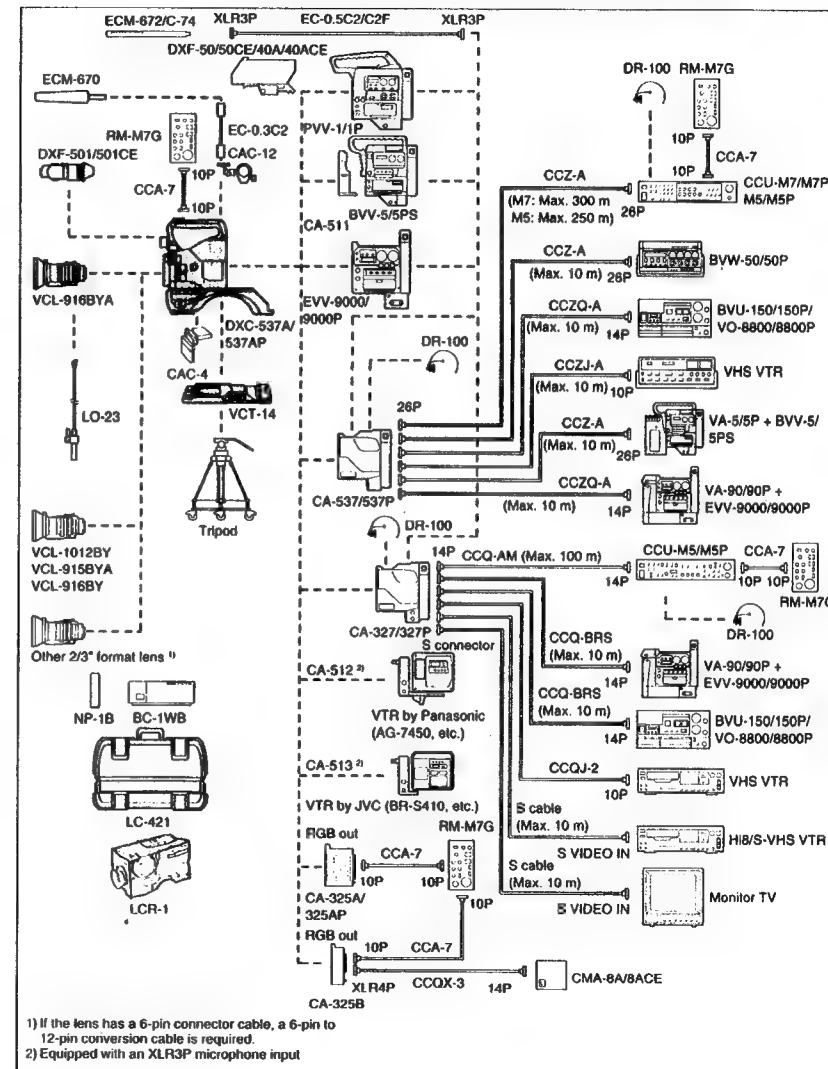


Chart of optional components and accessories

## Table of Optional Components and Accessories

This table shows the components and accessories that fit the camera adaptors and dockable VTRs.

		Optional components and accessories										
		2/3" lens	Viewfinder	Microphone	Microphone holder	Remote control	Power source					
Camera head DXC-537A/537AP		VCL-915BYA	VCL-1028BY	DXF-50/50ICE	DXF-40A/40ACE	ECM-672	C-74	ECM-670	CAC-1	CAC-11/11A	DR-100	NP-181A
Camera adaptor	CA-537/537P	●	●	●	●	●	●	●	●	●	●	●
	CA-327/327P <sup>1)</sup>	●	●	●	●	●	●	●	●	●	●	●
Dockable VTR	CA-325A/325AP	●	●	●	●	●	●	●	●	●	●	●
	CA-325B	●	●	●	●	●	●	●	●	●	●	●
Dockable VTR	PVV-1/1P	●	●	●	●	●	●	●	●	●	●	●
	BVV-5/5PS (+CA-511)	●	●	●	●	●	●	●	●	●	●	●
Dockable VTR	EVV-9000/9000P	●	●	●	●	●	●	●	●	●	●	●
	AG-7450/7450A <sup>2)</sup> (+CA-512)	●	●	●	●	●	●	●	●	●	●	●
Dockable VTR	BR-5410/5411 <sup>3)</sup> (+CA-513)	●	●	●	●	●	●	●	●	●	●	●
	BR-5420C <sup>3)</sup> (+CA-513)	●	●	●	●	●	●	●	●	●	●	●

		Optional components and accessories										
		Camera control unit	Portable VTR									
Camera head DXC-537A/537AP		CCU-M1/MTP	CCU-M5/MSP	RM-MTG	BYW-30/30P	BVV-5/5PS (+CA-511)	BVV-1/1P/1/1P	VO-8800/8800PS	EP-8800/8800P	EDW-71 (+CA-513)	AG-7450	AG-7450P
Camera adaptor	CA-537/537P	●	●	●	●	●	●	●	●	●	●	●
	CA-327/327P <sup>1)</sup>	●	●	●	●	●	●	●	●	●	●	●
Dockable VTR	CA-325A/325AP	●	●	●	●	●	●	●	●	●	●	●
	CA-325B	●	●	●	●	●	●	●	●	●	●	●
Dockable VTR	PVV-1/1P	●	●	●	●	●	●	●	●	●	●	●
	BVV-5/5PS (+CA-511)	●	●	●	●	●	●	●	●	●	●	●
Dockable VTR	EVV-9000/9000P	●	●	●	●	●	●	●	●	●	●	●
	AG-7450/7450A <sup>2)</sup> (+CA-512)	●	●	●	●	●	●	●	●	●	●	●
Dockable VTR	BR-5410/5411 <sup>3)</sup> (+CA-513)	●	●	●	●	●	●	●	●	●	●	●
	BR-5420C <sup>3)</sup> (+CA-513)	●	●	●	●	●	●	●	●	●	●	●

●: Applicable  
x: Not applicable  
① to ⑤: See notes.

①: A conversion cable (6P to 12P) is required.  
②: Attachable to the camera handle only.  
③: Minijack.  
④: CCOX cable is required.  
⑤: Some functions cannot be controlled.  
⑥: Connectable to the camera head.  
⑦: Component signals cannot be recorded. (VBS signal only)

Note  
When connecting a portable VTR, a cable length of more than 10m (33 ft.) cannot be guaranteed.

- 1) CA-327: Serial No. 10271 and higher  
CA-327P: Serial No. 40101 and higher
- 2) Panasonic VTRs
- 3) JVC VTRs

## Summary of Optional Components and Accessories

This section introduces you to a summary of the following components and accessories.

- Lenses
- Viewfinders
- Microphones and headsets
- Camera adaptors
- VTRs
- Power sources
- Camera control units
- Camera cables

### Lenses

		Lenses	
Item	Lens	Canon	Fujinon
		VCL-915BYA	VCL-816BY
Focal length		9.5 – 143mm	9.5 – 152 mm
Zoom ratio		15 x	16 x
Iris control		F1.8 to F16 and C (Close)	
Range of object field		at a distance of 0.95 m W(Wide angle): 601 × 801mm (23 3/4 × 31 5/8 inches) T(Telephoto): 41 × 54mm (1 5/8 × 2 1/4 inches)	at a distance of 0.95 m W(Wide angle): 617 × 823 mm (24 3/8 × 32 1/2 inches) T(Telephoto): 38 × 51 mm (2 1/8 × 1 1/2 inches)
Minimum object distance		0.95m	0.95m
Filter thread		ø 82mm P = 0.75	ø 77mm P = 0.75
Connector		12-pin	12-pin
Mount		2/3-inch Bayonet mount	
Remote lens control		LO-26	LO-23

### Viewfinders

		Viewfinders	
Item	Viewfinder	DXF-50/50CE	DXF-40A/40ACE
		5" monochrome, 70-degree	4" monochrome, 50-degree
Resolution		More than 600 TV lines (center) More than 500 TV lines (corners)	400 TV lines

### Longsight kit and left-eye adaptor for DXF-50/50ICE

By attaching the longsight kit to the DXF-50/50ICE viewfinder, the normal diopter adjustment range (−1D to +3D) can be changed to −1D to +1D. The left-eye adaptor allows you to watch through the viewfinder with your left eye. For more information, consult your Sony dealer.

## Microphones and Headsets

Microphones and headsets

Microphone Item	Gun microphone		Headset
	ECM-672	C-74	DR-100A
Directivity	Super cardioide	Super uni-directional	Microphone section: Unidirectional
Power supply	Batteries (size AA (R6) × 1) Continuous battery operation time: about 3000 hours, 48 V DC	Mercury battery (7MR9 × 1) Continuous battery operation time: about 50 hours, 48 V DC	—
Microphone diameter (mm)	■ 24 mm	■ 25 mm	—
Remarks	Microphone cable EC-0.5C2 (Cannon male - Cannon male)/EC-0.5C2F (Cannon male - Cannon female)		Plug connector: stereo miniplug

## Summary of Optional Components and Accessories

## Camera Adaptors

Camera adaptors

Camera adaptor		CA-537/537P	CA-327/327P	CA-325A/325AP	CA-325B
Inputs/outputs	Item				
	VTR/CCU/CMA	Z-type, 26-pin	Q-type, 14-pin	—	—
	DC IN	XLR-type, male, 4-pin		—	XLR-type, male, 4-pin
	AC IN	—	—	3-pin, male	—
	MIC IN	XLR-type, female, 3-pin (compatible with external power supply system)	XLR-type, female, 3-pin, balanced	—	—
	GENLOCK IN	BNC		BNC	
	EAR	minijack		—	—
	INTERCOM	mini intercom jack		—	—
	VIDEO OUT	—	—	BNC	
	S VIDEO OUT	—	4-pin mini DIN	4-pin mini DIN	
	RGB	—	—	BNC (G sync ON/OFF possible)	
	SYNC OUT	—	—	BNC	
	AUDIO OUT	—	phono jack	phono jack	
	REMOTE	—	—	10-pin, female	
Power requirements		12 V DC		CA-325A: 100/120 V AC, 50/60 Hz CA-325AP: 220/240 V AC, 50/60 Hz	12 V DC
Features		This camera adaptor is required when recording with a Betacam portable VTR which requires component outputs (BVW-50/50P/35/35P or BVV-5/5P + VA-5/5P).		Component outputs are not supplied, however, it is equipped with an S Video connector. It is convenient when using a S-VHS VTR as a sub VTR.	
				As there is a difference of 0.8 kg in their weight, the CA-325B is more suitable in an application which requires light weight, such as a microscope system.	

## VTRs

VTRs

Item	VTR	PVV-1/1P	BVV-5/5PS	BVW-50/50P	BVU-150/150P	VO-8800/8800P	EVV-9000/9000P
Recording format		Betacam SP			SP-U-matic	SP-U-matic	Hi8
Dockable system availability		○	○ (+ CA-511 camera adaptor)	—	—	—	○
Portable system availability		—	○ (+ VA-5/5P camera adaptor)	○	○	○	○ (+ VA-90/90P camera adaptor)
Inputs/outputs	CAMERA IN	—	—	Z-type, 26-pin	Q-type, 14-pin	Q-type, 14-pin	—
	VIDEO IN	—	BNC	BNC	BNC	BNC	—
	SC IN	—	—	BNC	BNC	—	—
	AUDIO IN (MIC IN)	XLR-type, 3-pin, female × 2	XLR 3-pin, male × 4	XLR 3-pin, male × 4	XLR 3-pin, male × 2	XLR 3-pin, female × 2	XLR 3-pin, male × 2
	TIME CODE IN	BNC	—	BNC	BNC	BNC (BKU-706)	—
	GENLOCK* VIDEO	BNC	—	—	—	—	—
	REMOTE IN	—	—	—	—	Special minijack	—
	DC IN	XLR 4-pin, male	—	XLR 4-pin, male	XLR 4-pin, male	XLR 4-pin, male	XLR 4-pin, male
	VIDEO OUT	BNC	—	BNC × 2	BNC	BNC	BNC × 1 Phono × 1
	AUDIO OUT	—	—	XLR 3-pin, female × 4	XLR 3-pin, female × 2	XLR 3-pin, male × 2	Phono
	TIME CODE OUT	BNC	—	BNC	BNC	BNC (BKU-706)	—
	HEADPHONE OUT	—	—	Stereo phone jack	Stereo minijack	Stereo phone jack	—
	EARPHONE OUT	Minijack	—	Stereo minijack	—	—	Minijack
	DC OUT	—	—	—	—	—	—
	Others	—	PLAYBACK ADAPTOR: 20-pin multiconnector	DUB/COMPO-NENT OUT: 12-pin multiconnector RFU DC OUT: special minijack	RF OUT: F-type	RF OUT: F-type	RFU DC OUT: special minijack

## Summary of Optional Components and Accessories

## Power Sources

## Battery packs

Battery packs			
Battery	NP-1B	NP-1A	BP-90A
Item			
Capacity	About 2.3 Ah <sup>1)</sup>	About 1.7 Ah	About 5.0 Ah
Weight	About 690 g	About 690 g	About 1.7 kg
Battery charger (Charging time)	BC-1WB (About 95 minutes)	BC-1WA (About 70 minutes)	BC-410/410CE (About 160 minutes)

## Battery chargers

Battery chargers				
Battery charger		BC-1WB	BC-1WA	BC-410/410CE
Item				
Usable batteries		NP-1B, NP-1A	NP-1A	NP-1B, NP-1A, BP-90A
Features		<ul style="list-style-type: none"><li>• Up to four batteries can be installed simultaneously and charged in sequence.</li><li>• Batteries with different capacities remaining can be charged safely by being installed in any slot.</li></ul>		<ul style="list-style-type: none"><li>• Up to four NP-1B/1A and four BP-90A can be installed and charged simultaneously</li><li>• Discharging function</li><li>• Trickle charging to prevent automatic discharging</li><li>• Charging indicator</li><li>• Applicable on 100 – 240 V AC.</li></ul>

## AC adaptors

AC adaptors		
AC adaptor	CMA-8A/8ACE	AC-500/500CE
Maximum current supplied	5A	7A

## 1) Ah

A unit to indicate the capacity of a battery. 2.3 Ah means that the battery lasts for 1 hour when it bears a load of 2.3A.



## Camera Control Units

Camera control units			
Item	Camera control unit	CCU-M5/M5P	CCU-M7/M7P RM-M7G
Camera		Q-type 14 pin, Z-type 26-pin	Z-type 26-pin CCU/CAMERA: 10-pin
DC input		—	—
Viewfinder		—	—
Return video in/out		BNC × 2	—
Genlock in/out		BNC × 2	—
Video out		VBS: BNC × 2 Y/C: 4-pin mini DIN RGB/component: BNC × 3	—
Monitor out		BNC × 1	BNC × 1
Tally/incom		4-pin DIN, screw terminal × 4	—
Sync out		BNC	—
Remote		10-pin	—
Mic. out		—	XLR-type, 3-pin, male
Auxiliary		—	10-pin
Power requirement		85–138 V AC, 50/60 Hz (CCU-M7) 185–275 V AC, 50/60 Hz (CCU-M7P)	9–17 V DC (Power is supplied from the connected equipment.)
Cable length (max.)		250 m or 825 feet	300 m or 990 feet 100 m or 330 feet No cable compensation of the video signal.
Gain		0 dB (LOW)/9 dB (MID)/18 dB (HIGH)	
Output signal		Camera/Color bar	Camera/Color bar/Test
Character display		ON/OFF	
Shutter speed		OFF (1/60), 1/100, 1/200, 1/500, 1/1000, 1/2000, 1/5000, 1/10000	OFF (1/60), 1/100, 1/200, 1/500, 1/1000, 1/2000
Iris		Manual/Auto	
White balance		Manual/Auto/Preset	
R/B gain		○	
Black balance		Manual/Auto	
Master pedestal		○	
R/B pedestal		○	
Master gamma		—	○
R/B gamma		—	○
Knee point		Manual/Auto/Preset	
Detail		○	○
SC phase		○	○
H phase		○	○
Scene file function		—	○ (8 positions)
Intercom/Tally		Intercom/Tally	
VTR start/stop switch		—	○
Microphone output		—	○
Others		<ul style="list-style-type: none"> <li>• Clock ON/OFF</li> <li>• Auto Iris Mode select</li> <li>• ATW ON/OFF</li> <li>• EVS ON/OFF</li> <li>• Color Matrix select</li> <li>• Title set ON/OFF</li> <li>• Menu operation</li> </ul>	<ul style="list-style-type: none"> <li>• A maximum of 300 m (990 feet) cable length is guaranteed by the built-in cable compensator.</li> <li>• Fine adjustment of the luminance and chrominance of a composite signal is possible.</li> </ul>

### Note on the RM-M7G

When you use the CCU-M7/M7P/M5/M5P camera control unit to control the DXC-537A/537AP, you cannot connect the RM-M7G remote control unit directly to the camera head. Connect the remote control unit to the camera control unit. However, you can connect the RM-M7G to the camera head if the camera control unit is not used.

## Summary of Optional Components and Accessories

### Camera Cables

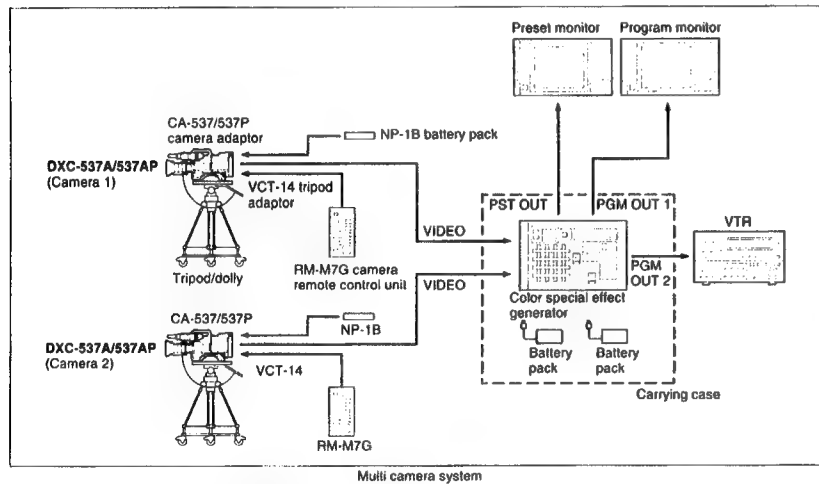
Camera cables			
Model No.	Pin	Color	Functions/Features
CCZ-A (CCZ-A2/5/10/25/50/100)	26-pin	Gray	Used when connecting the CA-537/537P (26-pin) to the BVW-50/50P, BVV-5/5PS + VA-5/5P, CCU-M7/M7P or CCU-M5/M5P (26-pin).
CCZQ-A2AM	26-pin	Gray	Used with CCZ-A and CCZ-1E/1B when connecting the CA-537/537P (26-pin) to the CCU-M5/M5P (14-pin).
CCZQ-A (CCZQ-A2/5/10)	26-pin	Blue	Used when connecting the CA-537/537P (26-pin) to the VO-8800/8800P/BVU-150/150P, EVV-9000/9000P + VA-90/90P, S-VHS VTR (AG-7400, etc.) or CMA-8A/8ACE (14-pin).
CCZJ-A (CCZJ-2/5)	26-pin	Dark gray	Used when connecting the CA-537/537P (26-pin) to the VHS VTR (AG-6400, etc.) (J-type, 10-pin).
CCQX-3	XLR-type 4-pin	Dark gray	Used when connecting the camera (XLR-type, 4-pin) to the CMA-8A/8ACE or AC-500/500P AC adaptor (14-pin).
CCA-7 (CCA-7-5/25/50/100)	10-pin	Black	Used when connecting the RM-M7G remote control unit to the DXC-537A/537AP.
CCQ-AM (CCQ-10/25/50/100AM)	14-pin	Gray	Used when connecting the CA-327/327P (14-pin) to the CCU-M5/M5P (14-pin).
CCQ-BRS (CCQ-25/10/25/50BRS)	14-pin	Blue	Used when connecting the CA-327/327P (14-pin) to the VO-8800/8800P, BVU-150/150P or EVV-9000/9000P + VA-90/90A (14-pin).
CCQJ-2	14-pin	Gray	Used when connecting the CA-327/327P (14-pin) to the VHS VTR (AG-6400, etc.) (J-type, 10-pin).
CCDQ-06	DIN 4-pin	Black	Used when connecting the CCU-M5/M5P (DIN 4-pin) to the CMA-8A/8ACE (14-pin).

## Sample Video System Configurations

This section introduces 5 sample systems.

### Multi Camera System

This system uses two cameras, each of which shoots from different angles. Their images are switched and recorded while special effects are added. Further, if you add a remote control unit, you can make various adjustments to the camera, such as color adjustment, at hand.



#### Adjusting the picture tone of the cameras

When two or more cameras are used in a system the subcarrier\* (SC) phase and the horizontal (H) phase of each camera should be adjusted to avoid picture tone shift or horizontal sync deviation by switching cameras.

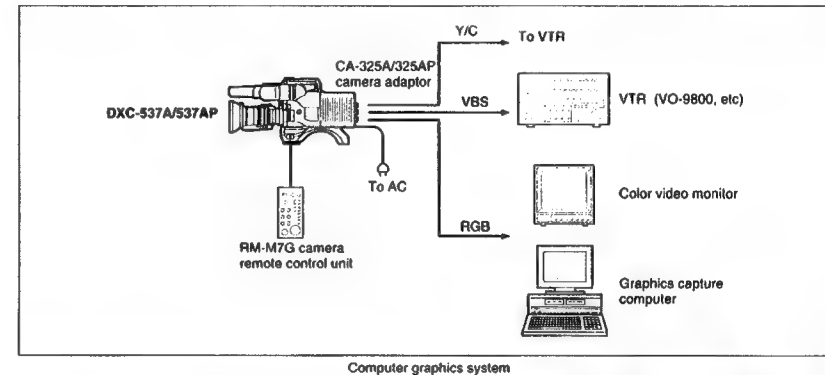
Use one of the cameras as a reference, and adjust each camera so that its subcarrier phase and the horizontal phase are the same as those of the reference camera.

- 1 Adjust the subcarrier phase roughly by using the SC PHASE selector.
- 2 Adjust the subcarrier phase precisely by using the SC PHASE control while checking the phase on a vector scope.
- 3 Adjust the horizontal phase by using the H PHASE control while checking the phase on a video monitor. For precise adjustment, use a waveform monitor or oscilloscope.

## Sample Video System Configurations

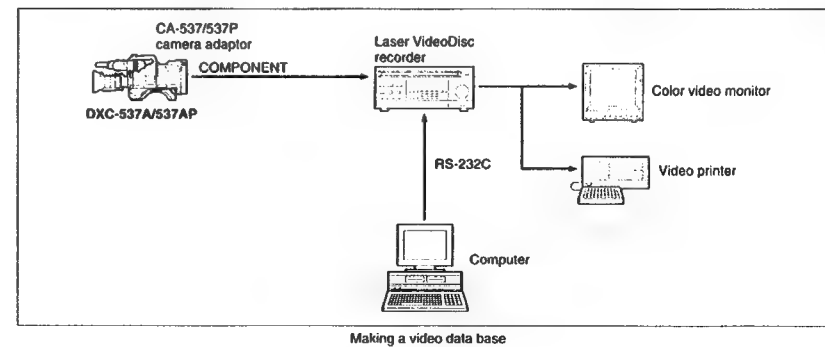
### Computer Graphics System

This is a system for creating computer graphics from the images shot with the video camera.



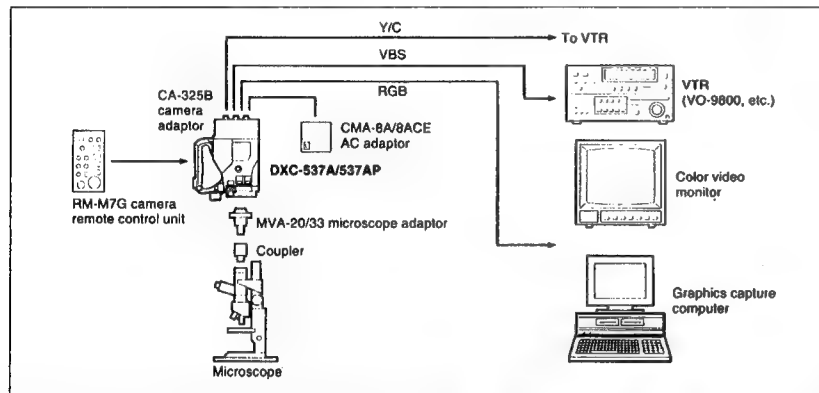
### Laser Video Disc Recording System

The images shot with the video camera and still pictures can be recorded and stored on a video disc. By using a computer, much of valuable video information can be made into a data base on a video disc.



## Microscope Recording System

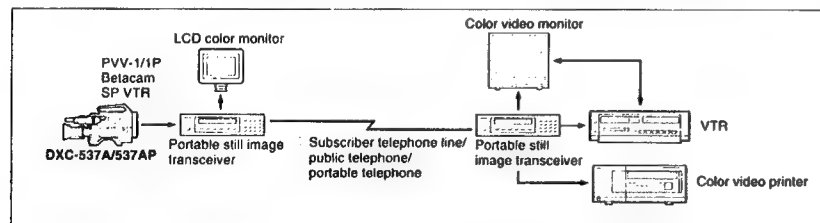
This is a system for shooting an image captured by a microscope. A microscope adaptor is required.



Microscope recording system

## Still Image Transmitting System

Using a still image transceiver, the images shot with the camera can be digitally processed, stored in the memory and transmitted through a telephone line. An on-site video report using this system is useful for appropriately determining the conditions in an emergency.



Basic system for still picture transmission

## Chapter 6 Maintenance

This chapter provides troubleshooting and maintenance information concerning the camera.

Warning System .....	6-2
Troubleshooting .....	6-4
Maintenance .....	6-5
Cleaning .....	6-5
Condensation .....	6-7

# Warning System

When a problem occurs when the power is on or during operation, warnings are given:

- by the REC/TALLY and BATT indicators in the viewfinder
- by a message on the viewfinder screen
- by the Tally lamp
- by the WARNING lamp in the display window and the alarm sound on the VTR (only with the EVV-9000/9000P, PVV-1/1P and BVV-5/5PS)

The following table shows the warnings and how to deal with them.

Warnings and how to deal

Camera			VTR		Alarm sound	Problem	VTR action	What to do
REC/TALLY Indicator and tally lamp	BATT Indicator	Viewfinder display	WARN-ING lamp	Display window				
	—	—		RF lights. <sup>a)</sup>	● ● ● ● ● ● 4 beeps/sec. ● ● ● ● ● ● 1 beep/sec. ● ● ● ● ● ● continuous beep	Video head gaps are clogged <sup>1)</sup> , or there is a problem in the recording circuit.	Beeps after detecting head clogging.	Clean the heads. (see page 6-6) If the recording quality is still poor, turn the power off and consult your Sony dealer.
	—	—		SERVO lights.	● ● ● ● ● ●	Servo lock is lost.	Recording continues, but the quality is poor.	Turn the power off and consult your Sony dealer. (The SERVO indicator may flash momentarily when recording starts. This is not a problem.)
	—	—		HUMID lights.	● ● ● ● ● ● ● ● ● ● ● ●	Condensation exists on the head drum.	Recording continues, but stops if the tape sticks to the head drum. Playback, fast-forward or rewind stops.	Stop the tape. Turn off the power, turn it on again and wait until the HUMID indicator goes off.
	—	—		SLACK lights.	● ● ● ● ● ●	The tape cannot be wound properly.	VTR stops. (Refer to the service manual or maintenance manual of the VTR.)	Eject the cassette. Close the cassette holder, and turn the power off after the top panel of the cassette holder has lowered completely. Then consult your Sony dealer.)
	—	—		TAPE END flashes. <sup>a)</sup>	● ● ● ● ● ●	The tape  wound close to the end.	Operation continues.	Change the cassette, if necessary.
	—	—		TAPE END flashes.	● ● ● ● ● ●	The tape has reached its end.	Recording, playback or fast-forward stops.	Change the cassette.
		BATT 10.7 V		BATTERY flashes.	● ● ● ● ● ●	Battery is almost exhausted.	Operation continues.	Change the battery, if necessary.
		BATT 10.7 V		BATTERY E flashes.	● ● ● ● ● ●	Battery is exhausted.	Operation stops.	Change the battery.

continuous light

1 flash/sec.

4 flashes/sec.

a) During recording only

b) During playback, fast-forward and rewind

For the warning messages displayed in the viewfinder, see "Viewfinder Display" on page 1-14.

## If an abnormality occurs with a portable VTR

When a portable VTR is used, warnings are given by the tally lamp, and the REC/TALLY and BATT indicators inside the viewfinder. (Error messages do not appear on the viewfinder screen.)

### 1) Clogging of video head gaps

If the VTR remains in a recording standby or pause mode for a long duration of time, the video heads abrade the same portion of the tape repeatedly. As a

result, the magnetic powder of the tape adheres to the video heads and the recording quality becomes poor.

## Troubleshooting

If you think you have a problem during operation, check through the following list. Should any difficulty persist, consult your Sony dealer or local authorized Sony service facility.

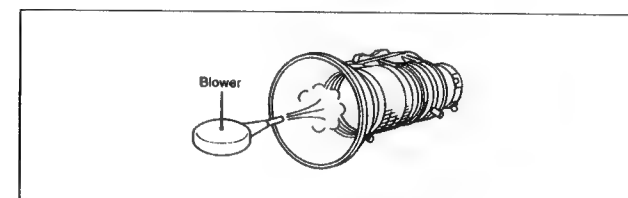
Symptom	Cause	Reference page
The power cannot be turned on.	• The battery is not installed.	2-28
	• The POWER switch on the camera or VTR is set to OFF. (Camcorder system)	2-31
	• The connection between the camera and VTR is not good, or the power connection is not good. (Camcorder system)	2-8, 2-27
	• The VTR cannot supply the power to the camera. (Portable VTR not made by Sony make)	2-25
The battery is quickly discharged.	• The battery capacity is lowered (memory effect) because you charged it before using it up completely.	2-30
	• The battery pack has not been fully charged.	2-29
	• Incorrect care of the battery.	2-29
	• You have repeatedly started/stopped recording or frequently used motorized zooming, rewind, fast-forward and other operations which consumed much battery power.	--
The image on the whole screen is bluish or reddish.	• The white balance is not adjusted.	3-9
	• The FILTER selector or WHITE BAL selector setting is different from what it was when the white balance was adjusted.	3-10
	• The ATW switch is set to ON. (Since the ATW function is provided for emergency use, it is not perfect.)	3-9
	• The AUTO W/B BAL switch inadvertently flipped to WHT during recording.	3-7
	• The lighting conditions or light source are different from what they were when the white balance was adjusted. (Readjust the white balance.)	3-9
Black in the image is bluish or reddish.	• The black balance is shifted due to the change of ambient conditions.	3-8
Recording does not start or stop.	• The power is not supplied.	2-27
	• The setting of the VTR switch on the camera adaptor is incorrect.	2-26
Audio cannot be recorded.	• The setting of the VTR switch on the camera adaptor is incorrect.	2-26
The image in the viewfinder is blurred.	• The image is out of focus.	3-5
	• The flange focal length of the lens is not correct.	2-37
	• The lens is dirty.	6-5
	• The distance from the camera to the object is too short (Use close-ups.)	3-17

## Maintenance

### Cleaning

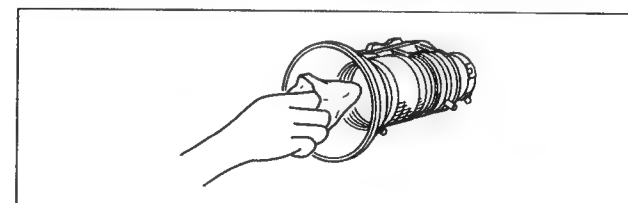
#### Cleaning and care of the lens

- Perform lens maintenance and inspection once a year. If necessary, have the lens overhauled.
- Use a blower or soft brush to clean off dust on the surface of the lens. Do not rub on the lens when it is dusty.



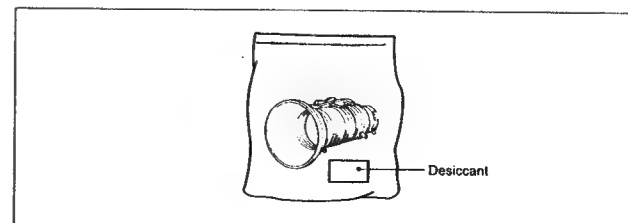
Blowing off the dust on the lens

- If the lens is soiled with grease or fingerprints, moisten a clean cotton cloth or lens cleaning paper with a commercially available lens cleaning liquid, and wipe off the dirt with a circular movement of the cloth or paper moving from the center to the edge of the lens.



Wiping off the dirt with lens cleaning paper

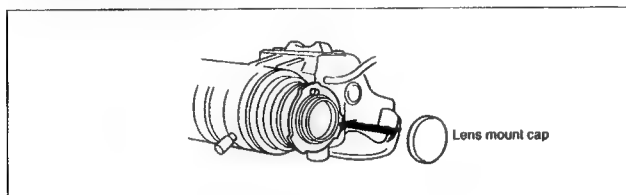
- If you use the camera in rain, snow or any other place where it may get wet, cover it carefully. After using the camera in such a place, wipe off the moisture with dry cloth, and seal it in a plastic bag together with a desiccant until it dries completely.



Sealing in a plastic bag with a desiccant

## Maintenance

- Avoid attaching and removing the lens in a dusty place.
- When the lens is removed, attach the lens mount cap to keep dust away from the inside of the lens mount.



Attaching the lens mount cap

### Cleaning the viewfinder

Use a commercially available blower to remove dust from the CRT screen and mirror inside the viewfinder barrel.

### Cleaning the camera head

Clean the cabinet, panel and controls with a soft, dry cloth. If the dirt is extremely heavy, use a cloth moistened with a mild detergent solution, then wipe it off with a dry cloth.  
Do not use any type of solvent, such as alcohol or benzine which might damage the finish.

### Cleaning the video heads

When playback pictures are noisy and hardly visible, the video heads may be dirty and must be cleaned. Clean the video heads by using a cleaning cassette.  
*For details, see the instructions manual of the VTR.*

### Replacing the video heads

If the picture is still noisy after cleaning, replace the video heads. The life of the heads is about 500 to 1000 hours of use. To replace the heads, consult your Sony dealer.

## Condensation

If you move the unit from a very cold place to a warm place, or use it in a very humid location, condensation may form on the head drum, tape and lens. If the unit is operated in this state, the tape may adhere to the drum, and cause a failure or even permanent damage. To avoid this, take the following precautions:

- When moving the unit from a cold place to a warm place, do not insert a cassette. If already inserted, eject the cassette.
- If moisture has condensed in the unit while a cassette is inserted, remove the cassette by pressing the EJECT button. Then turn off the power and wait until the condensation disappears completely.



## Appendix

Specifications .....	A-2
Glossary .....	A-6

## Specifications

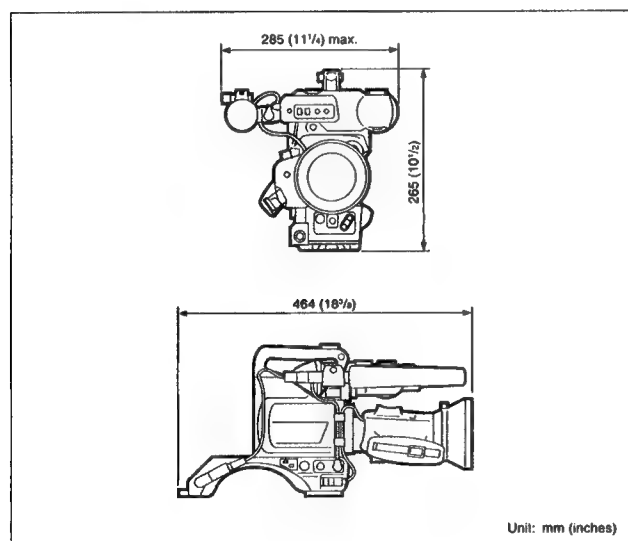
### Camera Head DXC-537A/537AP

The DXC-537A uses the NTSC system and the DXC-537AP uses the PAL system.

Image device	$\frac{2}{3}$ " Interline-transfer CCD, 3-chip
Picture elements	768 × 493 (h/v) (NTSC) 786 × 581 (h/v) (PAL)
Sensing area	8.8 mm × 6.6 mm (equivalent to a 2/3-inch pickup tube)
Built-in filters	1: 3200 K 2: 5600 + 1/4 ND 3: 5600 K 4: 5600 K + 1/16 ND
Lens mount	Sony $\frac{2}{3}$ " Bayonet mount
Signal system	EIA standards, NTSC color system (DXC-537A) CCIR standards, PAL color system (DXC-537AP)
Scanning system	525 lines, 2:1 interlace, 30 frames/sec. (NTSC) 625 lines, 2:1 interlace, 25 frames/sec. (PAL)
Scanning frequency	Horizontal: 15.734 kHz (NTSC) 15.625 kHz (PAL) Vertical: 59.94 Hz (NTSC) 50.00 Hz (PAL)
Sync system	Internal External with the BS or VBS signal supplied to the GEN LOCK IN connector (when the CA-537/537P, CA-325A/325AP or CA-325B is used) or the reference signal input to the VTR/CCU/CMA connector from the GEN LOCK IN connector of the CCU-M5/M5P/M7/M7P (when the CA-537/537P is used)
Horizontal resolution	750 TV lines (center)
Minimum illumination	13 lx with F1.8, +18 dB 7.5 lx with F1.4, +18 dB 1.9 lx with F1.4, +30 dB
Sensitivity	2000 lx with F8.0 (Typical) at 3200 K, 89.9% reflectance
Gain selection	-3, 0, 3, 6, 9, 12, 18 or 24 dB, selectable
Video output	Composite signal: 1.0 Vp-p, sync negative, 75 ohms unbalanced R/G/B signal: 1.4 Vp-p Y/C separate signal: Y: 1.0 Vp-p, sync negative, unbalanced C: burst level without sync 0.286 Vp-p (NTSC) or 0.3 Vp-p (PAL)
Signal to noise ratio	62 dB (NTSC, Typical) 60 dB (PAL, Typical)
Registration	0.05% for all zones, without lens
Inputs/Outputs	Interface: 50-pin DIN VIDEO OUT: BNC-type, 75 ohms, unbalanced LENS: 2/3-inch lens connector (12-pin) VF: 8-pin DIN REMOTE: 10-pin MIC: XLR-type (3-pin)
Power requirements	12 V DC (10.5 to 17 V DC)
Power consumption	10.5 W

Operating temperature	-10°C to +45°C (14°F to 113°F)
Storage temperature	-20°C to +60°C (-4°F to 140°F)
Mass	2.3 kg (5 lb 1 oz)
Dimensions	See the illustrations below.

#### Dimensions



## Specifications

### Zoom Lens VCL-916BYA

Focal length	9.0 mm to 144 mm
Zoom	Manual and motorized, selectable Zooming ratio: 16x
Maximum aperture ratio	1:1.8
Iris control	Manual and auto, selectable F1.8 to F16 and C (closed)
Range of object field (at the distance of 0.9 m)	
W (wide angle):	815 × 611 mm (32 1/8 × 24 1/8 inches)
T (telephoto):	51 × 38 mm (2 1/8 × 1 1/2 inches)
Minimum object distance	0.9 m (35 1/2 inches)
Filter thread	77 mm dia., 0.75 mm pitch (Lens) 86 mm dia. 1 mm pitch (Hood)
Mount	Bayonet* mount, 2/3 inch
Mass	About 1.2 kg (2 lb 10 oz) without hood
Dimensions	About 120 × 197 mm (dia./length) with hood (when focus is ∞) (4 3/4 × 7 7/8 inches)

### Viewfinder DXF-501/501CE

Picture tube	1.5-inch monochrome
Indicators	REC/TALLY indicator BATT indicator SHUTTER indicator GAIN UP indicator
Resolution	600 TV lines
Power requirements	12 V DC
Power consumption	2.3 W
Mass	About 500 g (1 lb 2 oz)
Dimensions	About 182 × 68 × 205 mm (w/h/d) (7 1/4 × 2 3/4 × 8 1/3 inches)

### Carrying Case LC-421

Mass	About 7.7 kg (15 lb 7 oz)
Dimensions	About 790 × 440 × 340 mm (w/h/d) (31 1/8 × 17 3/8 × 13 1/2 inches)

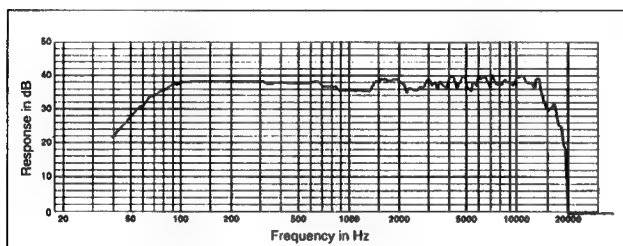


## Glossary

### Microphone ECM-670

Type	Electret condenser microphone
Directivity	Super cardioid
Frequency response	70 – 16,000 Hz
Sensitivity	$-44 \pm 3$ dB (0 dB = 1 V/Pa at 1000 Hz)
Maximum input sound pressure level	125 dB SPL (at 1000 Hz, 1% T.H.D. typical)
Signal-to-noise ratio	More than 70 dB
External power supply	11 V to 52 V DC
Dimensions	Approx. 21 dia. $\times$ 225.5 mm (27/32 dia. $\times$ 9 inches) not incl. wind screen
Mass	Approx. 165 g (5.8 oz)

#### Frequency response



### Accessories Supplied

Wind screen (supplied with DXC-537AK/AL/APK/APL only) (1)  
 Lens mount cap (1)  
 Chart for flange focal length adjustment (1)  
 Operating Instructions (1)

Design and specifications are subject to change without notice.

#### Aliasing (Page 1-20)

Distortion of the signal caused by the overlap of the base band signal and the lower sideband signal when the signal is demodulated.

#### ATW function (Page 3-13)

Abbreviation of Automatic Tracing White balance function. A function which controls the white balance to the optimum value tracing the variations in the current lighting conditions.

#### Bayonet type (Page A-4)

A type of lens mount. The lens is inserted into the lens mount and fixed in place by rotating a ring.

#### Black balance (Page 3-7)

To balance the black level of the R, G and B signals so that black has no color.

#### Black set (Page 3-7)

A reference level for black balance adjustment. To set the reference black level of the R, G and B channels so that the black looks black even if the gain of the video amplifier is increased.

#### CCD (Page 1-2)

Abbreviation of charge-coupled device. A semiconductor which is used in place of a camera tube. It converts light into an electrical charge and outputs the electrical charge in the form of voltage variations.

#### Center marker (Page 4-17)

A cross that indicates the center of the image on the viewfinder screen.

#### Color bar signals (Page 2-35)

Test signals displayed on the screen as vertical stripes of different colors. Used for the adjustment of hue and saturation by a video camera and video monitor.

#### Color matrix (Page 1-6)

The actual color of the subject and the color in a person's memory are not always the same. Therefore, if the color of a person's skin, for example, is reproduced faithfully, it becomes yellowish and looks unhealthy. The color matrix function compensates such color differences.

#### Color temperature (Page 3-4)

The color quality of lights, expressed in Kelvins (K). Color temperature is lower when the color is reddish and higher when bluish.

#### Condensation (Page 6-7)

Moisture which condenses on tape transport mechanisms. The tape tends to adhere to and be damaged by condensation on the head drum.

#### CRT (Page 1-7)

Abbreviation of cathode-ray tube. A tube type display. A CRT is used in a camera viewfinder so you can monitor what you are shooting.

#### Depth of field (Page 3-3)

The range in front and in the rear of the subject that seems to be in focus. The depth of field is great when the range is big, and narrow, when the range is small.

#### Diopter (Page 2-33)

A unit to indicate the degree of convergence or divergence of a bundle of rays. Also means a device used on the ocular lens of video cameras or telescope to correct the vision of the operator.

#### Ff

See Flange focal length.

#### Flange focal length (Page 2-37)

Distance from the plane of the lens mounting flange to the image focal plane.

#### Flare

Light unnecessary for the focus of an image may stray into the image plane and interfere with the image. Flare is a loss of contrast in the image resulting from this phenomenon.

#### Flicker (Page 4-12)

Repeated change of brightness on the screen, which is caused by the frequency difference between the camera's scanning and the variations in the lighting.

#### Gain (Page 1-6)

Amplified amount of video signal. Measured in "dB" units.

**Gamma curve (Page 1-3)**

The video camera compensates for the non-linearity of the luminous characteristics of the video monitor. This is called gamma compensation. This characteristic curve is called the gamma curve.

**Gen-lock (Page 5-9)**

Abbreviation of Generator Lock. Synchronizes every piece of video equipment to a reference (master) sync.

**HAD (Page 1-2)**

Abbreviation of Hole-Accumulated Diode. A CCD sensor structure designed to suppress certain types of noise inherent in CCDs.

**Horizontal resolution (Page 1-2)**

Resolution of the screen in the horizontal direction. It is expressed as the number of vertical lines which can be distinguished when shooting a test chart.

**Hunting (Page 3-3)**

Repeated brightening and darkening of an image resulting from repeated responses to automatic iris control.

**IRE scale (Page 2-37)**

A video level measurement scale standardized by the Institute of Radio Engineers, now called the Institute of Electrical and Electronic Engineers (IEEE).

**Iris (Page 1-5)**

A diaphragm which controls the amount of light passing through the lens.

**Knee point (Page 1-6)**

Normally the video signal is cut off at a brightness level of 110% (% is a unit to indicate the brightness level). If the signal level is compressed, however, higher level signals can be reproduced. The knee point is the level with which signal compression starts.

**Luminance signal**

A signal that determines the brightness of the picture. Also called the Y signal.

**ND filter (Page 3-3)**

Abbreviation of Neutral Density filter. ND filters reduce the amount of incident light equally across the entire visible wavelength range without affecting color.

**Pedestal level (Page 1-17)**

A black level which is the absolute black level of a video signal. Normally, a video signal refers to the setup level (about 0% to 10% of video amplitude above the blanking level) as the black level.

**Picture elements (Page 1-2)**

Dots that compose an image. The more picture elements, the higher the resolution of the picture.

**Return video (Page 3-6)**

The picture from a VTR during recording, the playback picture during playback, or the signal from a control console such as a video switcher.

**Shutter speed (Page 4-12)**

The length of time a shutter remains open. The higher the shutter speed, the more clearly a moving object can be shot.

**Subcarrier (Page 5-11)**

Color information contained in a composite video signal. Its amplitude is for color saturation and its phase relative to the color burst signal is for hue.

**S-video output connector (Page 2-25)**

A connector for outputting Y (luminance) and C (chrominance) signals separately. Transferring a video signal in this separated form reduces interference between Y and C signals and helps reproduce noiseless images.

**Sync signal**

A reference signal consisting of vertical and horizontal sync signals used for synchronizing the scanning patterns of the video camera and the monitor.

## Glossary

**VBS (Page 5-12)**

Abbreviation of Video, Burst and Sync signal. It means the same as composite video signal.

**Vertical smear (Page 1-3)**

A bright vertical line which appears on the screen when shooting a very bright object with a CCD video camera. Also called smear.

**Viewfinder (Page 2-33)**

A video monitor attached directly to a video camera.

**White balance (Page 1-5)**

Adjustment of R, G and B signal levels, so that white objects are reproduced correctly as true white.

**Zebra pattern (Page 4-4)**

Striped patterns which appear in the viewfinder to indicate areas of the picture where the video level is about 70% to 80% IRE (for NTSC) or 490 mV to 560 mV (for PAL.) They are used to confirm the image level of the subject.

**Zoom (Page 3-5)**

To change the focal length of the lens gradually from wide-angle to telephoto (zoom in), and from telephoto to wide-angle (zoom out) without actually changing the lens.

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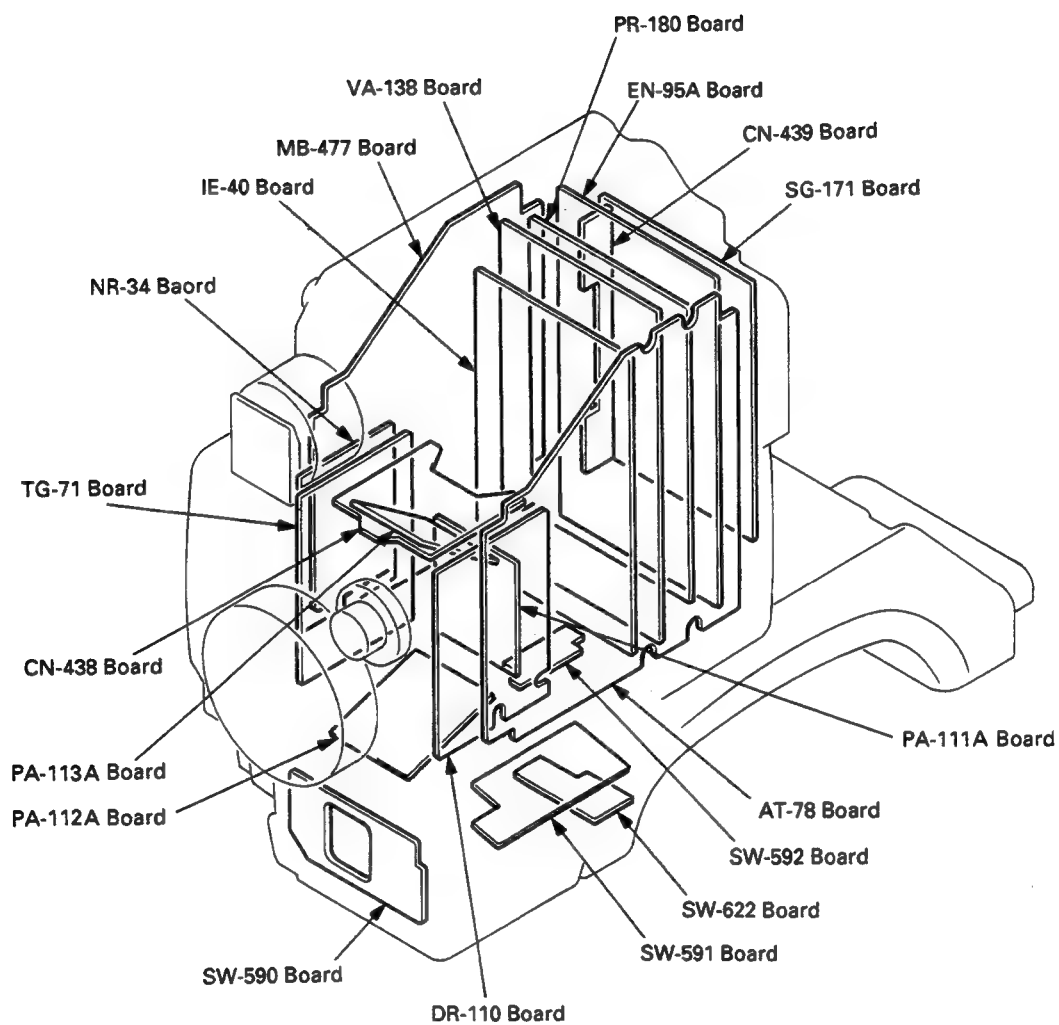
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## SECTION 2

### SERVICE INFORMATION

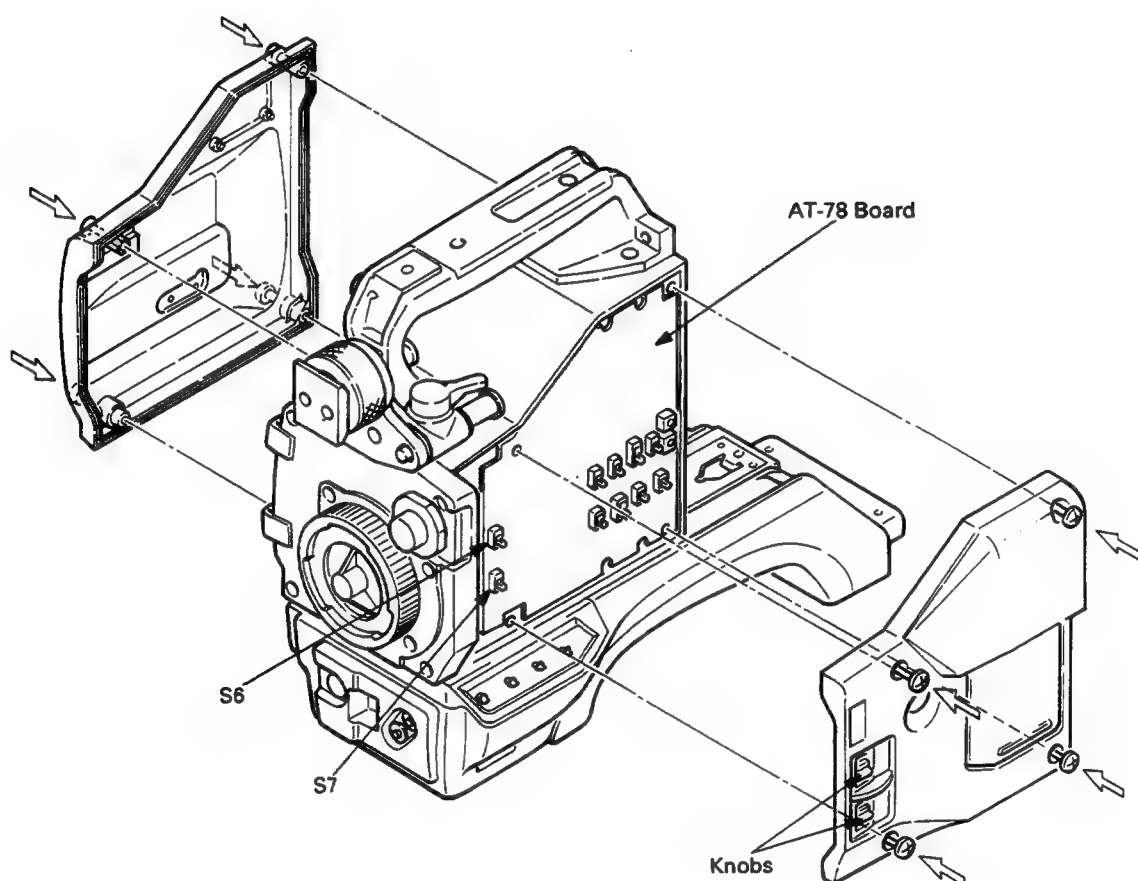
#### 2-1. BOARD LAYOUT



## 2-2. REMOVAL OF CABINET

Loosen the four screws respectively to remove the side plates.

**Note:** Before installing the right side plate, set both of switches S6 and S7 on the AT-78 board to bottom position and put two knobs for A. IRIS MODE and ATW switches down.



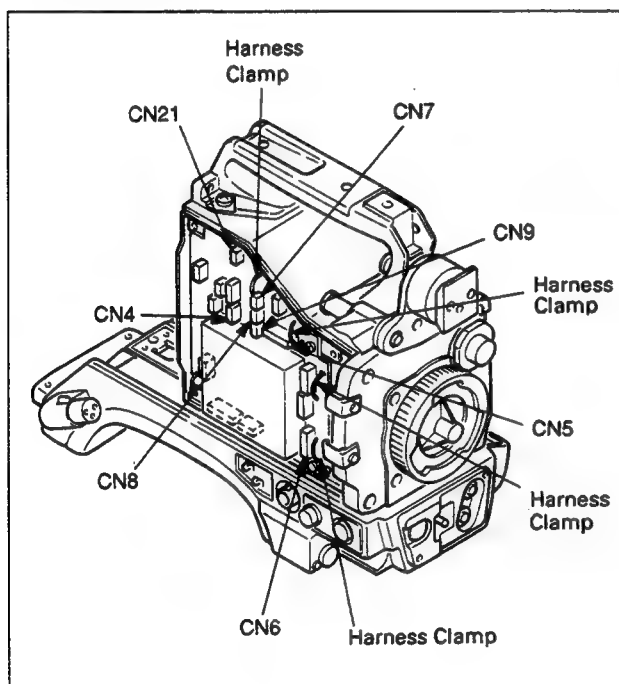
## 2-3. REPLACEMENT OF MAIN PARTS

**Note:** To replace the CCD, the whole CCD unit should be replaced.

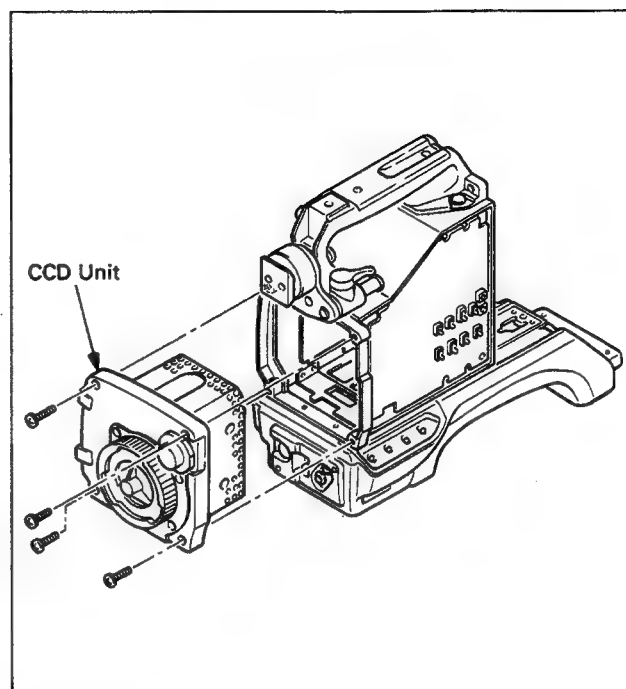
1. Remove the lens and viewfinder referring to the instruction manual.

**Note:** Attach a mount cap to the lens mount to protect the prism block.

2. Remove the left side plate referring to Section 2-2 "REMOVAL OF CABINET".
3. Disconnect the seven connectors, CN4 to CN9 and CN21. Release harnesses from harness clamps shown in the figure.



4. Remove the four screws and pull out the CCD unit.



5. Install a new CCD unit by reversing procedures for removal.

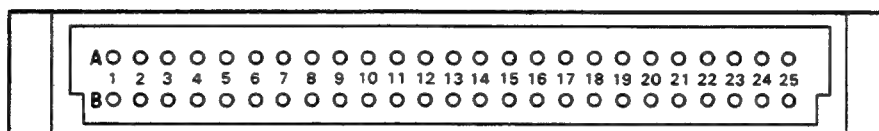
## 2-4. CONNECTORS AND CABLES

### 2-4-1. Connector Input/Output Signals

The main connector input/output signals are as follows:

VIDEO OUT (BNC); 1.0 Vp-p  $\pm$  0.1 V, sync negative 75 $\Omega$

CAMERA/CA (50P)



(EXTERNAL VIEW)

Pin No.	Signal	Specification
A1	MODE ID	OPEN : COMP, GND : R/G/B
B1	GND (CHASSIS)	
A2	MIC (Y) OUT	-60 dBm
B2	MIC (X) OUT	
A3	MIC (G) OUT	
B3	(SPARE)	
A4	REC TALLY IND IN	$Z_i \geq 600\Omega$
B4	(SPARE)	
A5	VTR START/STOP OUT	
B5	(SPARE)	
A6	(SPARE)	
B6	(SPARE)	
A7	(SPARE)	
B7	(SPARE)	
A8	GENLOCK VIDEO (G) IN	$Z_i \geq 1\text{ k}\Omega$
B8	GENLOCK VIDEO (X) IN	
A9	SYNC (G) OUT	H : 4.0~5.5 Vp-p : NEGATIVE L : 0 $\pm$ 0.4 Vdc $Z_o \leq 2\text{ k}\Omega$
B9	SYNC (X) OUT	
A10	PB RET VIDEO (G) IN	$Z_i \geq 10\text{ k}\Omega$
B10	PB RET VIDEO (X) IN	
A11	COLOR FRAMING PULSE	H : 4.0~5.5 Vp-p $Z_o \leq 2\text{ k}\Omega$ L : 0 $\pm$ 0.4 Vdc
B11	VF VIDEO CONT IN	CAM : OPEN $Z_i \geq 1\text{ k}\Omega$ , PB : 0 V
A12	VBS (G) OUT	1.0 Vp-p, SYNC NEGATIVE $Z_o = 75\Omega \pm 5\%$
B12	VBS (X) OUT	
A13	VTR SAVE CONT OUT	STBY: 4.0~5.5 Vp-p $Z_o \leq 100\Omega$ SAVE: 0 $\pm$ 0.25 V
B13	VTR/CCU CONT OUT	VTR : 0 $\pm$ 0.25 V $Z_o \leq 1\text{ k}\Omega$ CCU : 5.0 $\pm$ 0.5 V

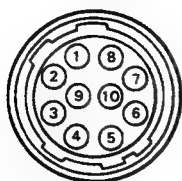
Pin No.	Signal	Specification
A14	CHROMINANCE (G) OUT	NTSC : 0.286 Vp-p $\pm 10\%$ PAL : 0.300 Vp-p $\pm 10\%$ $Z_o \leq 75\Omega \pm 5\%$
B14	CHROMINANCE (X) OUT	
A15	LUMINANCE (G) OUT	1.0 Vp-p, SYNC NEGATIVE $Z_o \leq 75\Omega \pm 5\%$
B15	LUMINANCE (X) OUT	
A16	VIDEO GND OUT	R/G/B 1.4 Vp-p, POSITIVE $Z_o \leq 75\Omega \pm 5\%$ COMPONENT OUT *1
B16	R/R-Y VIDEO OUT	
A17	G/Y VIDEO OUT	
B17	B/B-Y VIDEO OUT	
A18	BATT ALARM/S. DATA	
B18	REC REVIEW CONT OUT	GND ; REC REVIEW
A19	(SPARE)	
B19	(SPARE)	
A20	+8.5 V OUT 9.0 V	8.3 V~9.1 V
B20	+5 V OUT	$\pm 0.1\text{ V}$
A21	-5 V OUT	$\pm 0.1\text{ V}$
B21	GND	REG, GND
A22	POWER +12 V DC IN	10.6 V to 17.0 Vdc
B22	POWER +12 V DC IN	
A23	POWER +12 V DC GND	GND for $\pm 12\text{ Vdc}$
B23	POWER +12 V DC GND	
A24	(SPARE)	
B24	(SPARE)	
A25	GND (CHASSIS)	CHASSIS GND
B25	GND (CHASSIS)	

\*1

	UC	EK
Y	0.714 Vp-p	0.700 Vp-p
R-Y	0.700 Vp-p	0.525 Vp-p
B-Y	0.700 Vp-p	0.525 Vp-p



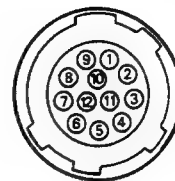
## REMOTE (10P, FEMALE)



(WIRING SIDE)

Pin No.	Signal	Specification
1	(SPARE)	
2	VBS (RM) (X)	1.0 V <sub>p-p</sub> , SYNC NEGATIVE
3	VBS (RM) (G)	
4	(SPARE)	
5	VTR START/STOP IN	Z <sub>i</sub> ≥ 10 kΩ OPEN (4.5 ± 0.5 V) 0 ± 0.5 V
6	S. DATA (X)	0 to 5 V Z <sub>i</sub> ≥ 10 kΩ
7	S. DATA GND	GND for S. DATA
8	REC TALLY IND OUT	Z <sub>o</sub> ≥ 600Ω
9	POWER +12 V DC GND	GND for +12 Vdc
10	POWER +12 V DC OUT	10.6 V to 17.0 Vdc

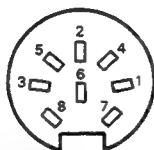
## LENS (12P, FEMALE)



(EXTERNAL VIEW)

Pin No.	Signal	Specification
1	VF VIDEO CONT IN	ON : 0 ± 0.5 Vdc
2	VTR START/STOP IN	TRIG : 0 ± 0.5 V
3	POWER +12 V DC GND	GND for +12 Vdc
4	COMPULSORY AUTO IRIS CONT OUT	AUTO : 4.5 ± 0.5 V MANU : 0 + 0.5 V or OPEN
5	IRIS CONT OUT	F16 : 3.4 Vdc F2.8 : 6.2 Vdc
6	POWER +12 V DC OUT	10.6 V to 17.0 Vdc
7	NC	
8	NC	
9	NC	
10	NC	
11	NC	
12	NC	

## VF (8P, FEMALE)



(WIRING SIDE)

Pin No.	Signal	Specification
1	POWER +12 V DC GND	GND for +12 Vdc
2	REC TALLY IND OUT	Z <sub>o</sub> ≤ 1.1 kΩ
3	E. SHUTTER IND OUT	Z <sub>o</sub> ≤ 1.1 kΩ
4	VF VIDEO (G) OUT	GND for VF VIDEO
5	BATT IND OUT	Z <sub>o</sub> ≤ 1.1 kΩ
6	VF VIDEO (X) OUT	V = 1 V <sub>p-p</sub>
7	POWER +12 V DC OUT	10.6 V to 17.0 Vdc
8	GAIN UP IND OUT	Z <sub>o</sub> ≤ 1.1 kΩ

## MIC (3P, FEMALE)



(EXTERNAL VIEW)

Pin No.	Signal	Specification
1	MIC (G) IN	GND for MIC
2	MIC (X) IN	-60 dB BALANCED (0 dB = 0.775 V)
3	MIC (Y) IN	

## 2-4-2. Connection Connector

Connections made with the connector panels during installation or service, should be made with the connectors or complete cable assemblies specified in the following list, or equivalent parts.

Connector Name	Parts No. and name of connector with cable
REMOTE (10P, FEMALE)	1-506-522-11 CONNECTOR, ROUND 10P, MALE HIROSE HR10A-10P-10P equality or CCA-7-20 Cable assembly (optional)
VIDEO OUT (BNC)	1-560-069-11 PLUG, BNC or B-B cable assembly (Cable length 1.5 m, optional)
VF (8P, FEMALE)	9-994-797-01 CABLE, VF
LENS (12P, FEMALE)	1-564-360-11 CONNECTOR, 12P, MALE HIROSE HR10-10PA-12P equality
MIC (3P, FEMALE)	1-508-084-31 CONNECTOR, 3P, MALE CANNON XLA-3-12C equality or EC-0, 3C2 cable assembly (supplied)

## 2-5. FUNCTION OF SWITCHES ON PC BOARD

### IE-40 board

- S1 (DTL ON/OFF)

When set to "ON", the detail circuit activates and a contour of image is enhanced.  
The switch is factory-set to "ON" position.  
Set according to use.

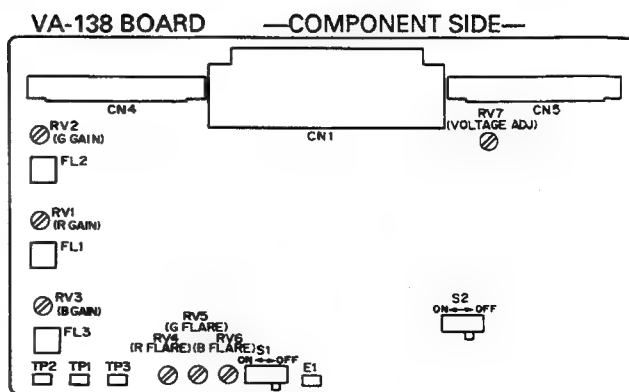
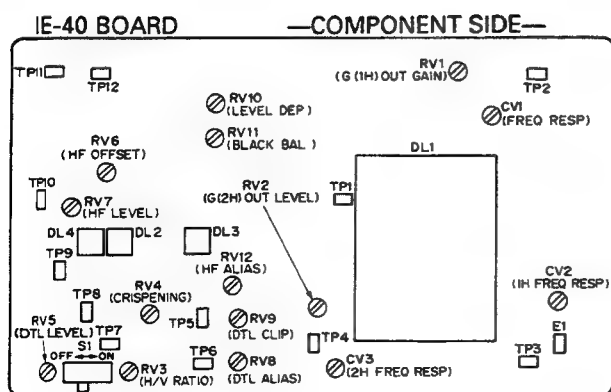
### VA-138 board

- S1 (FLARE ON/OFF)

When set to "OFF", the flare compensation circuit does not activate.  
The switch is factory-set to "ON".

- S2

This switch is not used and set it to "OFF" at all times.



## AT-78 board

- S11 (ADJ ON/OFF)

When set to "ON", the unit is put into ADJ mode, and various adjustments can be performed.

This switch is factory-set to "OFF".

### [Procedures]

1. When S11 is set to "ON", characters displayed on the VF screen are all erased and the screen ① will be displayed. (In clock setting, the screen ① will be displayed after setting is complete.)
2. 1) While the screen ① is displayed, by pressing the UP/ON button on the front of camera, data in a memory "EEPROM" is preset as shown in the table and then the screen ② is displayed. Next the screen ③ is displayed and the unit enters the ADJ mode.

ITEMS	PRESET VALUES
R/G/B DARK	Adjusted value is preset
AUTO WHT A/B	Adjusted value is preset
A.IRIS/DTL/M.PED	Setting value is preset
SHUTTER SPEED	1/100 (NTSC), 1/60 (PAL)
CLEAR SCAN	60.4 Hz (NTSC), 50.3 Hz (PAL)
GAIN SW setting	0/9/18 dB
L.L IND/TONE SET	OFF
SAFETY ZONE	90%
CENTER MARKER	ON
CLOCK	12-hour system
Order for displaying year and date	Year, Month, Day

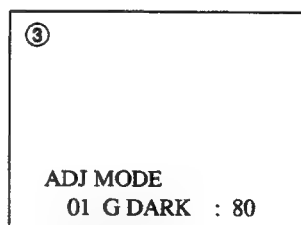
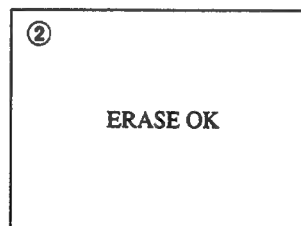
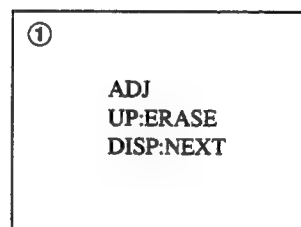
- 2) While the screen ① is displayed, press down the DISP CHG switch. The screen ③ will be displayed and the unit enters the ADJ mode. (The electronic shutter does not function regardless of SHUTTER switch (S5/AT-78 board) setting.)
3. 1) While the screen ③ is displayed, by pressing the UP/ON or DOWN/OFF button, data value will be varied from 00h to FFh.
- 2) While the screen ③ is displayed, by pressing both the UP/ON and DOWN/OFF buttons simultaneously, data value will show "80h".

4. By using the DISP/CHG switch, adjustment items is changed from 01h to 15h.

### [Adjustment items]

01 G DARK	08 R SHAD BAL	0F B V SAW
02 G BLACK1	09 B SHAD BAL	10 G VA GAIN
03 R DARK	0A G H SAW	11 R VA GAIN
04 R BLACK1	0B R H SAW	12 B VA GAIN
05 B DARK	0C B H SAW	13 M PRE KNEE
06 B BLACK1	0D G V SAW	14 R PRE KNEE
07 G SHAD BAL	0E R V SAW	15 B PRE KNEE

VF screen



Adjustment items      Data value

- S14 (FD/FM)

A CCD read mode is selected, field (FD) or frame (FM) integration mode. The switch is factory-set to "FD" position.

**Note:**

When the EVS switch (S9/AT-78 board) is set to ON, the electronic shutter does not function. However, with the switch S14 set to "FM", electronic shutter can be used under improved vertical resolution. In this condition, CCD sensitivity decreases by half compared to the field integration mode.

When electronic shutter is OFF, a sensitivity does not change and the vertical resolution is increased. On the other hands, more after-images appear because of an accumulation time of 1/30 seconds.

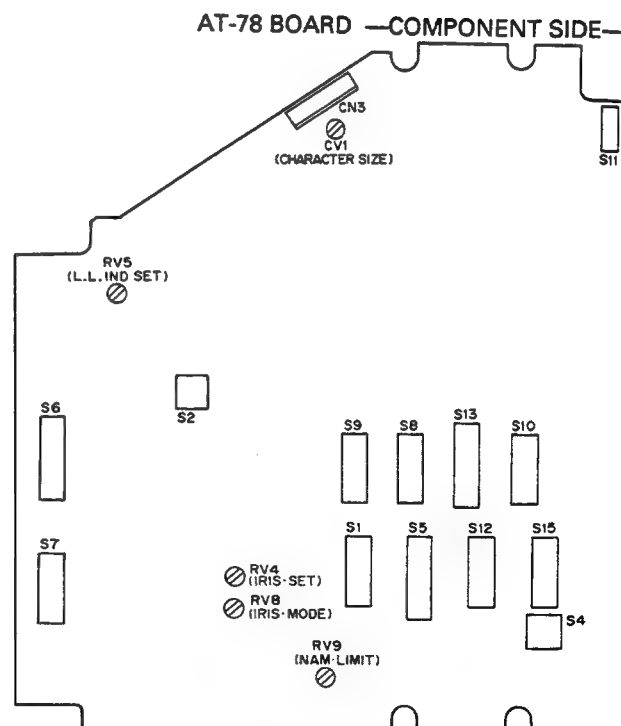
- S16 (90%/STD)
- S17 (80%/STD)

When the MARKER switch (S12/AT-78 board) on the camera side panel is set to "ON", a frame showing 90% (or 80%) of picture being shot (safety zone, factory-setting 90%) and a white cross showing the center marker of screen (center marker) can be displayed on the VF screen.

Combination of the above indications can be changed as shown in the table by using the switches S16 and S17. These are factory-set to "STD" position respectively.

SWITCH SETTING	POSITION OF CURSOR ON VF	SETTING WITH DISP CHG SWITCH
S16: STD	SAFETY	Selection of 90%/80%
S17: STD	CENTER	CENTER MARKER ON/OFF
S16: STD	SAFETY	80% ON/OFF
S17: 80%	CENTER	CENTER MARKER ON/OFF
S16: 90%	SAFETY	Not displayed
S17: STD	CENTER	CENTER MARKER ON/OFF
S16: 90%	SAFETY	90% ON/OFF
S17: 80%	CENTER	CENTER MARKER ON/OFF

For other switches on AT-78 board, refer to the instruction manual.



**PR-180 board**

- S1 (R GAMMA ON/OFF)
- S2 (G GAMMA ON/OFF)
- S3 (B GAMMA ON/OFF)

When set to "ON", the gamma correction is performed for the R, G and B video signals so that the overall characteristic of signals from camera to monitor is " $\gamma=1$ ". Normally set to "ON".

- S4 (MATRIX ON/OFF)

When set to "ON", the linear matrix circuit activates to obtain high saturated color reproducibility. The switch is factory-set to "ON".

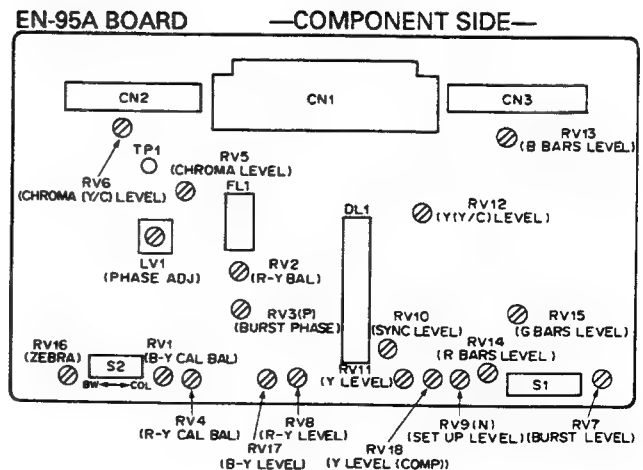
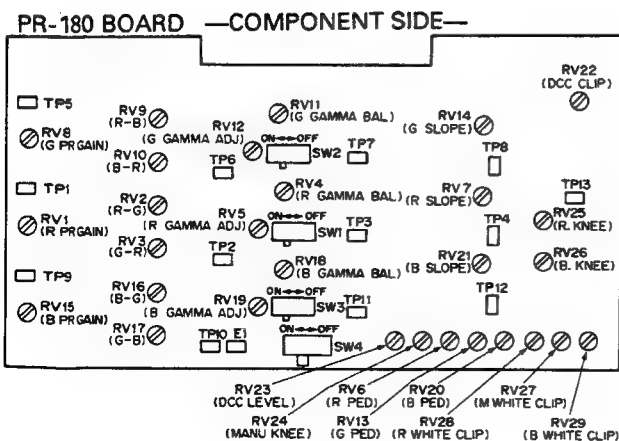
**EN-95A board**

- S1 (BLKG SEL 19H/20H/21H) . . . DXC-537A (NTSC) only

This switch selects V blanking width. The switch is factory-set to "20H".

- S2 (B/W /COL)

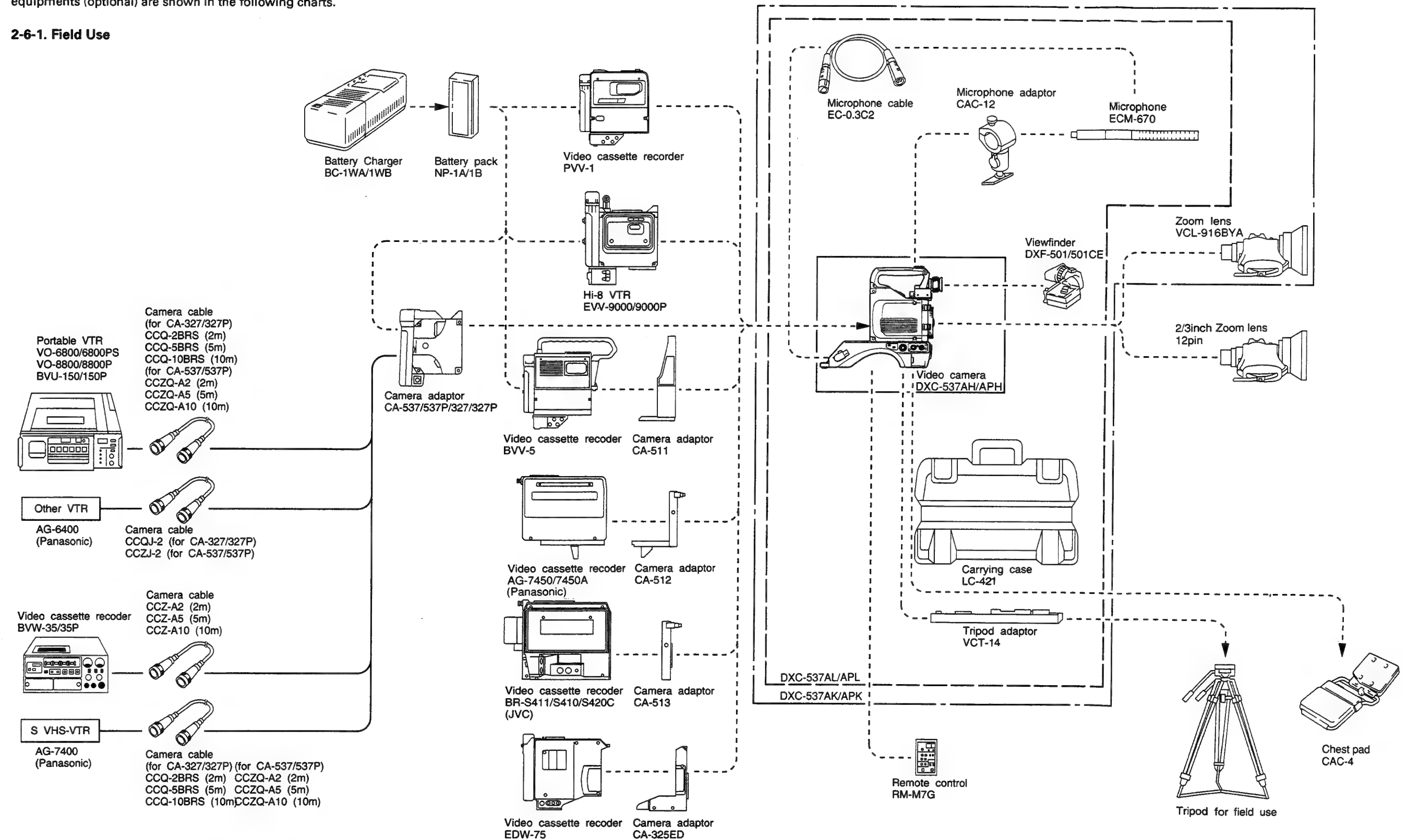
When set to "COL" (color) position, a signal to be sent to a viewfinder is changed from monochrome to color. When a monochrome viewfinder such as the DXF-501/501CE is used, set to "B/W" position.



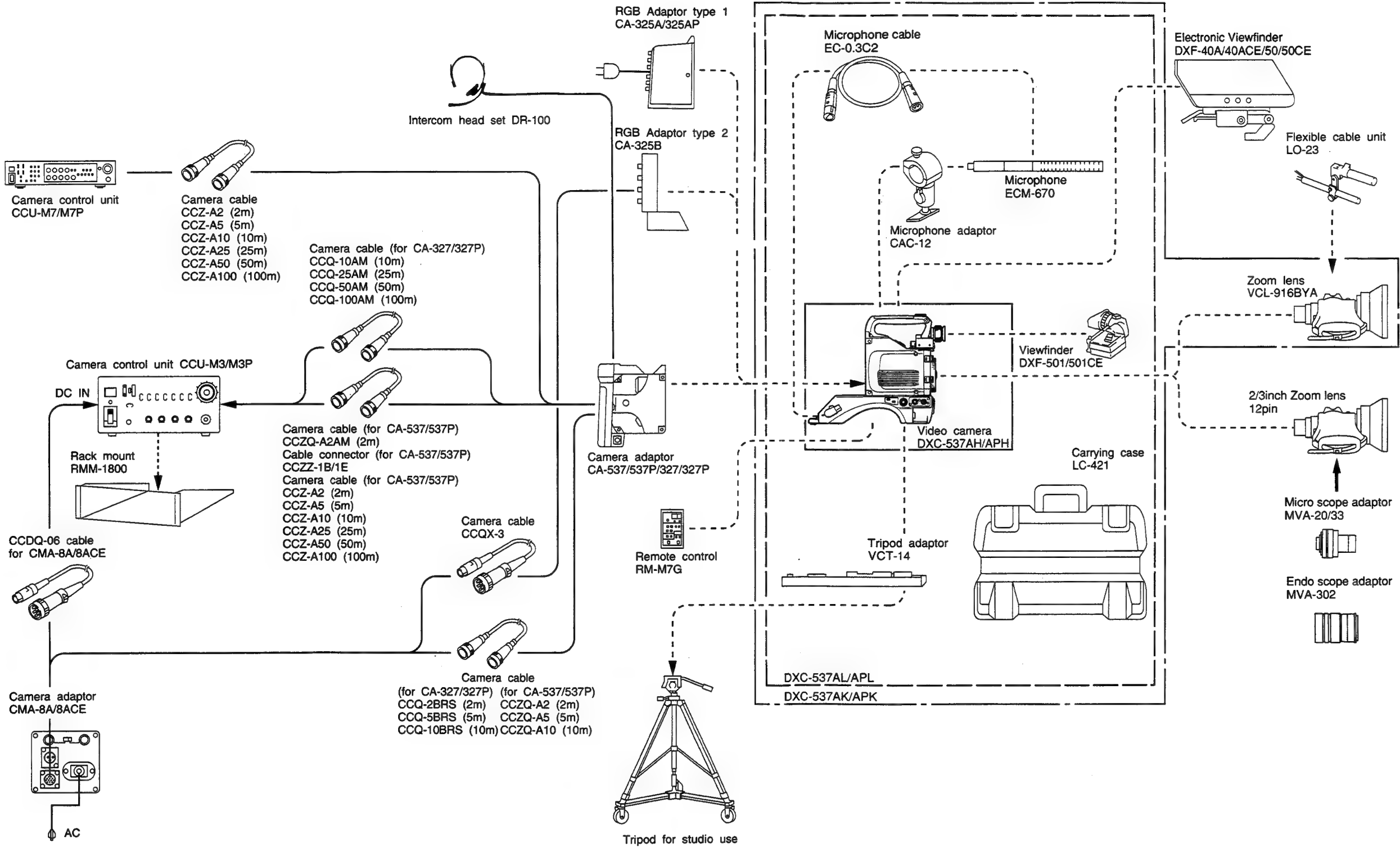
## 2-6. SYSTEM CONFIGURATION

Components of the DXC-537A/537AP series video camera kits and the configuration of the camera and its peripheral equipments (optional) are shown in the following charts.

### 2-6-1. Field Use



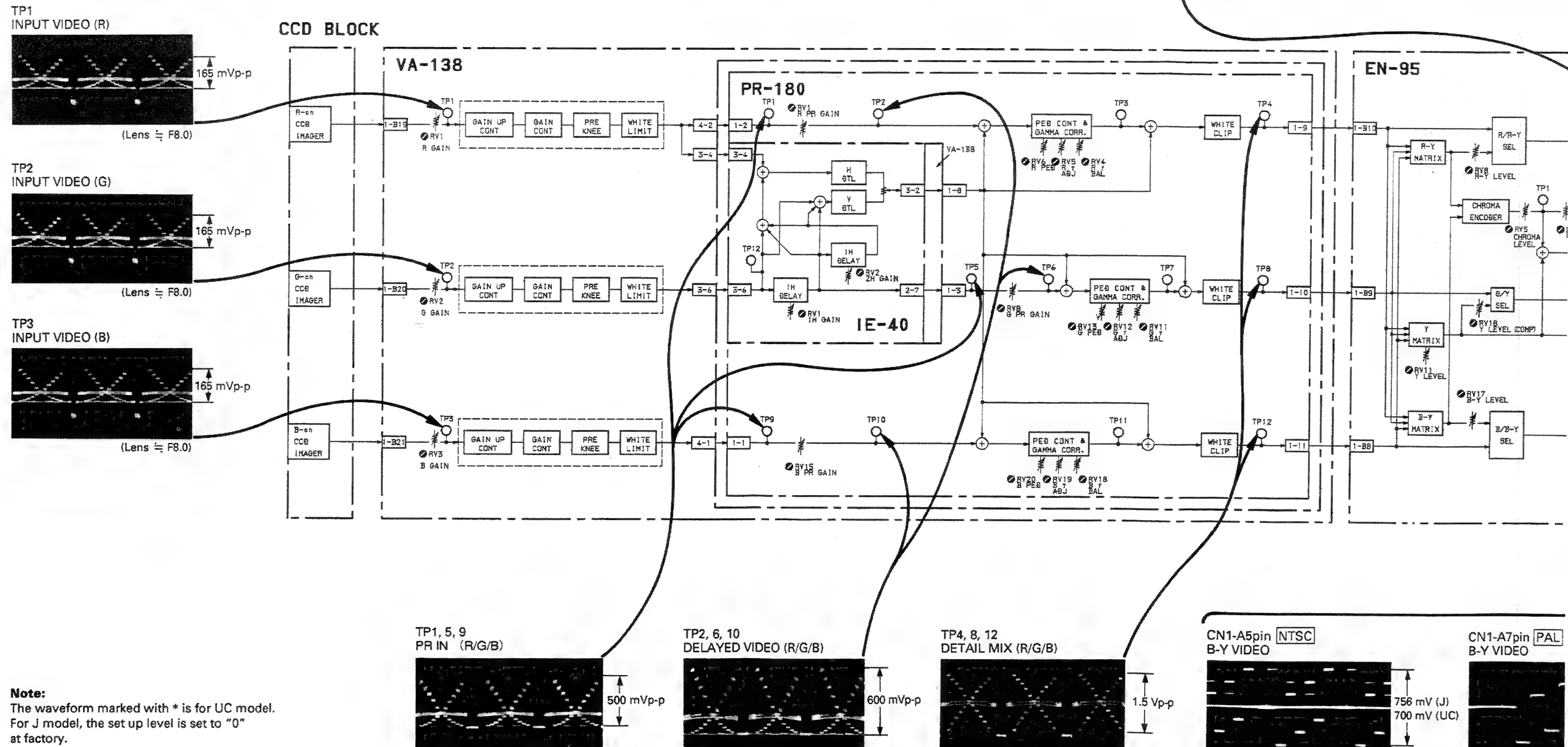
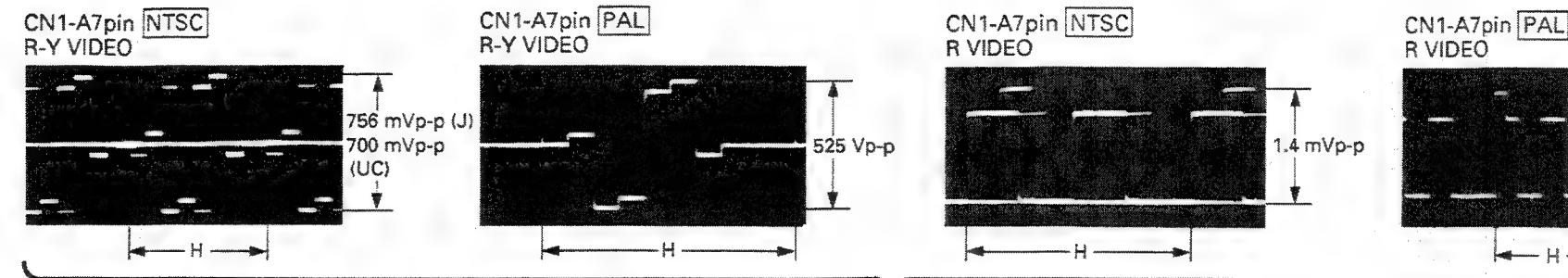
2-6-2. Studio/OB Van Use



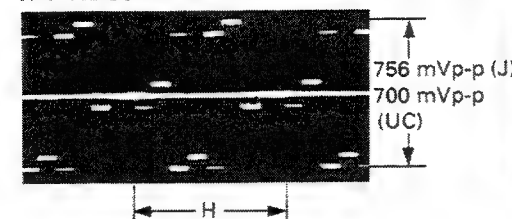


## 2-7. CHECK AND MAINTENANCE

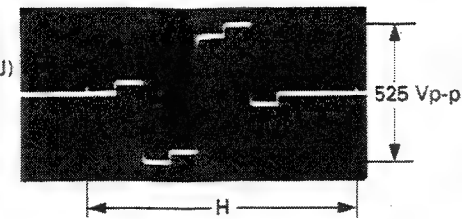
### 2-7-1. Video Level Check Sheet



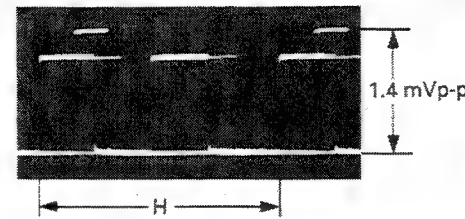
CN1-A7pin NTSC  
R-Y VIDEO



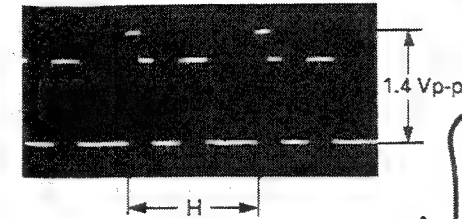
CN1-A7pin PAL  
R-Y VIDEO



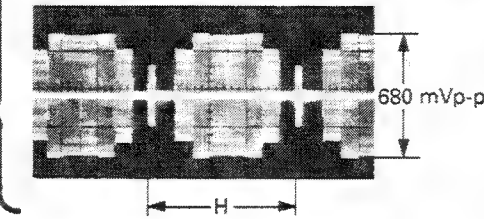
CN1-A7pin NTSC  
R VIDEO



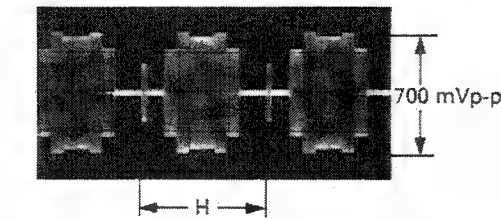
CN1-A7pin PAL  
R VIDEO



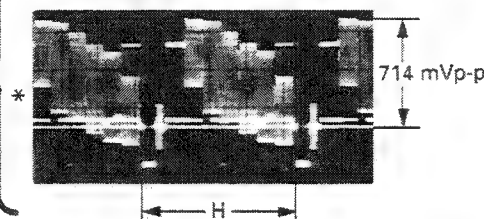
CN1-A11pin NTSC  
CHROMA



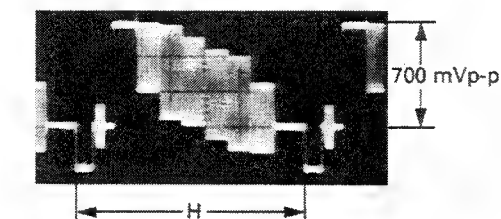
CN1-A11pin PAL  
CHROMA



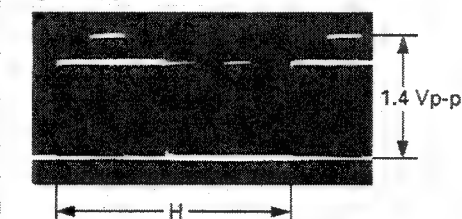
CN1-A14pin NTSC  
VBS VIDEO



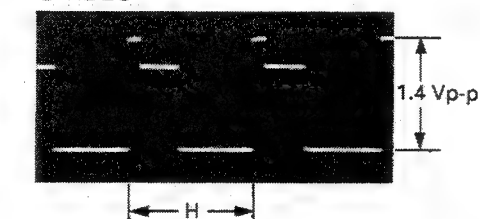
CN1-A14pin PAL  
VBS VIDEO



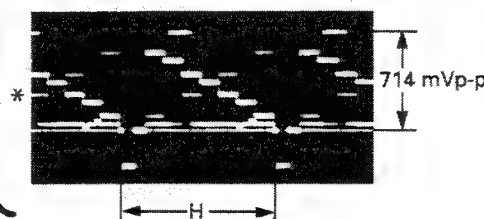
CN1-A6pin NTSC  
G VIDEO



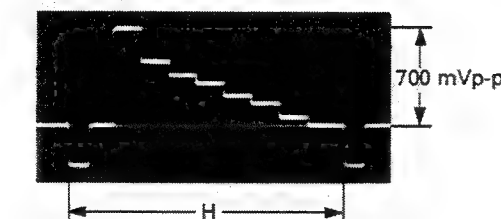
CN1-A6pin PAL  
G VIDEO



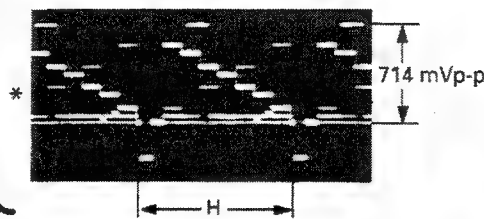
CN1-A6pin NTSC  
Y VIDEO



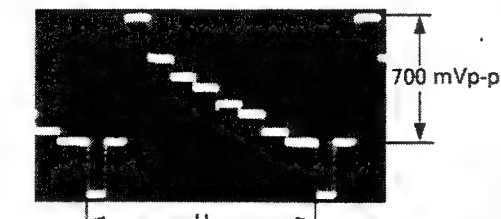
CN1-A6pin PAL  
Y VIDEO



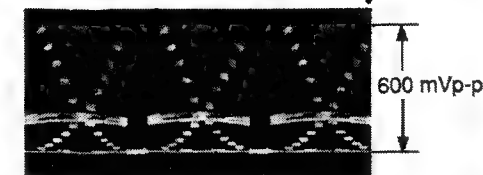
CN1-A9pin NTSC  
Y



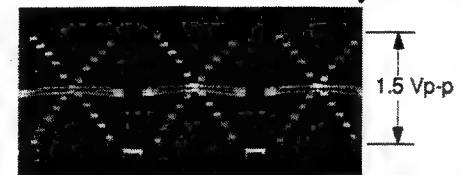
CN1-A9pin PAL  
Y



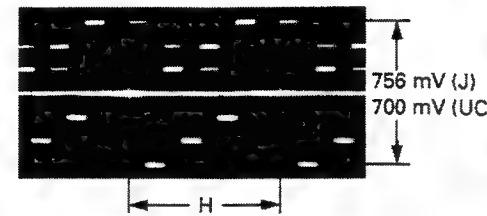
TP2, 6, 10  
DELAYED VIDEO (R/G/B)



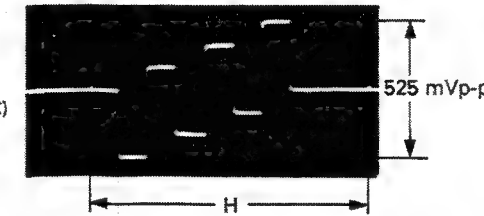
TP4, 8, 12  
DETAIL MIX (R/G/B)



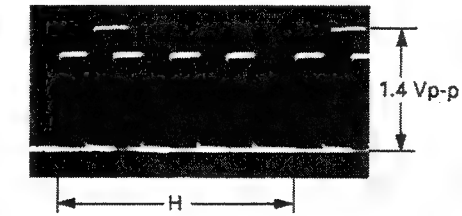
CN1-A5pin NTSC  
B-Y VIDEO



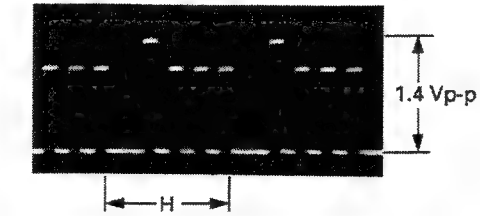
CN1-A7pin PAL  
B-Y VIDEO




CN1-A5pin NTSC  
B VIDEO

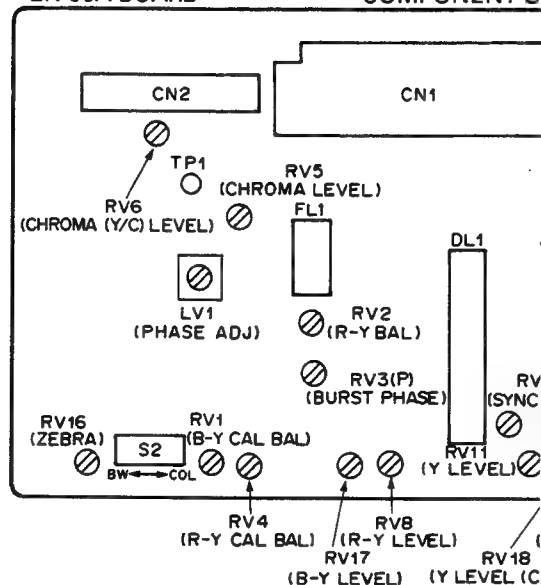


CN1-A5pin PAL  
B VIDEO

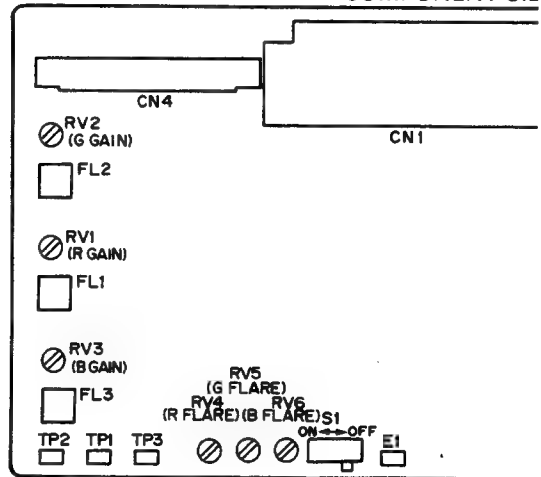



	Item	Setting	Measuring point	Adjustment point	Spec.	Remark	
Step 1	BARS Level	GAIN Switch → 0dB OUTPUT Switch → BARS	A6Pin/Extension Board (EN-95A)	⦿ RV15/EN-95A	1.4 ± 0.02 Vp-p	Be sure to use a vector scope compatible with setup level "0".	
			Waveform Monitor	⦿ RV13/EN-95A ⦿ RV14/EN-95A	The carrier leakage at gray portion is minimum		
Step 2	Carrier Balance		Vector Scope	⦿ RV1/EN-95A ⦿ RV4/EN-95A	White beam spot → Center		
Step 3	Burst Level			⦿ RV7/EN-95A	Burst 75% Position		
Step 4	Color Vector			⦿ RV2, ⦿ RV5 ⦿ LV1/EN-95A	Beam spots of each color → inside the  mark		
Step 5	SYNC Level		Waveform Monitor	⦿ RV10/EN-95A	40 ± 1 IRE (NTSC)/300 ± 7 mV (PAL)		
Step 6	Set Up Level			⦿ RV9/EN-95A	7.5 ± 0.5 IRE (NTSC)		
Step 7	Y Level			⦿ RV11/EN-95A	100 ± 1 IRE (NTSC)/700 ± 7 mV (PAL)		
Step 8	COMP Y Level		A6Pin/Extension Board (EN-95A)	⦿ RV18/EN-95A	Y Level : 714 mV (NTSC) : 700 mV (PAL)		VTR Switch/CA-537/537P → 3
Step 9	COMP B-Y Level		A5Pin/Extension Board (EN-95A)	⦿ RV17/EN-95A	700 mV (NTSC)		
Step 10	COMP R-Y Level		A7Pin/Extension Board (EN-95A)	⦿ RV8/EN-95A	525 mV (PAL)		
Step 11	Y/C Y Level		A9Pin/Extension Board (EN-95A)	⦿ RV12/EN-95A	Y Level : 700 mV		
Step 12	Y/C Chroma Level		A11Pin/Extension Board (EN-95A)	⦿ RV6/EN-95A	Burst Level : 290 mV (NTSC)/305 mV (PAL)		
Step 13	Reference Voltage		CN3 (11Pin)/VA-138	⦿ RV7/VA-138	+4.6 ± 0.05 V		
Step 14	G Video Level	Object : Gray Scale Chart GAIN Switch → 0dB WHITE BAL Switch → PRE SET	TP12/IE-40	⦿ RV2/VA-138	Video Level : 500 ± 5 mV	Lens Iris F ≒ 8.0	
Step 15	B Video Level		TP9/PR-180	⦿ RV36/VA-138			
Step 16	R Video Level		TP1/PR-180	⦿ RV1/VA-138			
Step 17	1H Gain Level	Records the right half of the white window chart.	CH1 : TP12/IE-40 CH2 : TP2/IE-40	⦿ CV2/IE-40	The phase of CH1 is aligned to CH2.	Observe the trailing edge of the white level.	
Step 18	G GAIN Level		CH1 : TP8/PR-180	⦿ RV8/PR-180	1400 ± 10 mV		
Step 19	R/B Pre Set White	GAIN Switch → 0dB Object : Gray Scale Chart Lens Iris F ≒ 8.0	CH1 : TP6/PR-180 CH2 : TP2/PR-180	⦿ RV1/PR-180	The waveform becomes flat.	Make the gain of CH1 and CH2 equal. Put the CH1 into the GAIN ADD mode and the CH2 into the INVERT mode.	
			CH1 : TP6/PR-180 CH2 : TP10/PR-180	⦿ RV15/PR-180	The waveform becomes flat.		
Step 20	G Gamma Balance		TP8/PR-180	⦿ RV11/PR-180	White Level : 1.4 V		
Step 21	G Gamma Set		TP8/PR-180	⦿ RV12/PR-180	Crosspoint : 880 mV		
Step 22	R Gamma Balance		TP4/PR-180	⦿ RV4/PR-180	White Level : 1.4 V		
Step 23	B Gamma Balance		TP12/PR-180	⦿ RV18/PR-180			
Step 24	R/B Gamma Set		Vector Scope	⦿ RV5/PR-180 ⦿ RV19/PR-180	White beam spot → Center	Be sure to use a vector scope compatible with setup level "0".	
Step 25	Pedestal	Lens Iris → Close GAIN Switch → 0dB	TP8/PR-180	⦿ RV13/PR-180	Level : 38 ± 5 mV (NTSC) : 45 ± 5 mV (PAL)		
			Vector Scope	⦿ RV7/PR-180 ⦿ RV22/PR-180		Be sure to use a vector scope compatible with setup level "0".	
Step 26	Knee	GAIN Switch → 0dB Object : Gray Scale Chart	Waveform Monitor	⦿ RV24/PR-180	Level : 104 IRE (NTSC) : 728 mV (PAL)	Lens Iris F ≒ 8.0	
				⦿ RV25/PR-180 ⦿ RV26/PR-180	Carrier leakage is minimized.		
				⦿ RV7/PR-180 ⦿ RV21/PR-180			
Step 27	G White Clip			Lens Iris → Open	⦿ RV27/PR-180		Clip : 115 IRE (NTSC) : 805 mV (PAL)
Step 28	R/B White Clip	Object : Gray Scale Chart		⦿ RV28/PR-180 ⦿ RV31/PR-180	Carrier of white portion is minimized		

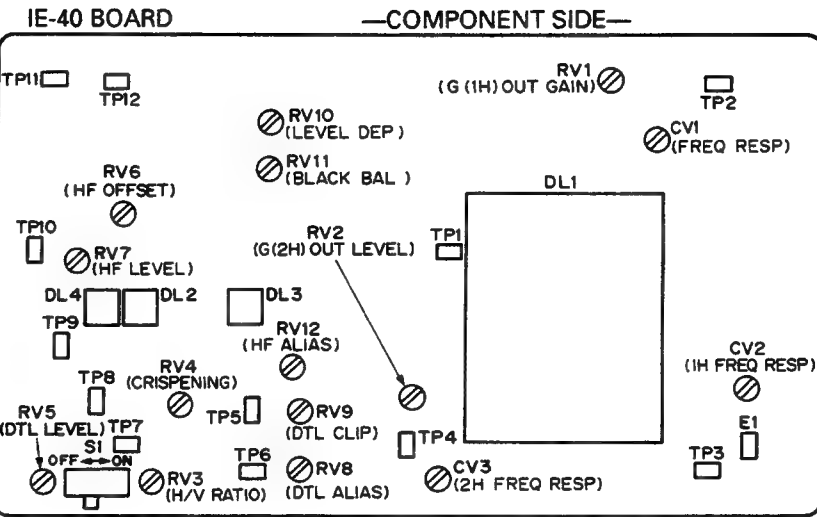
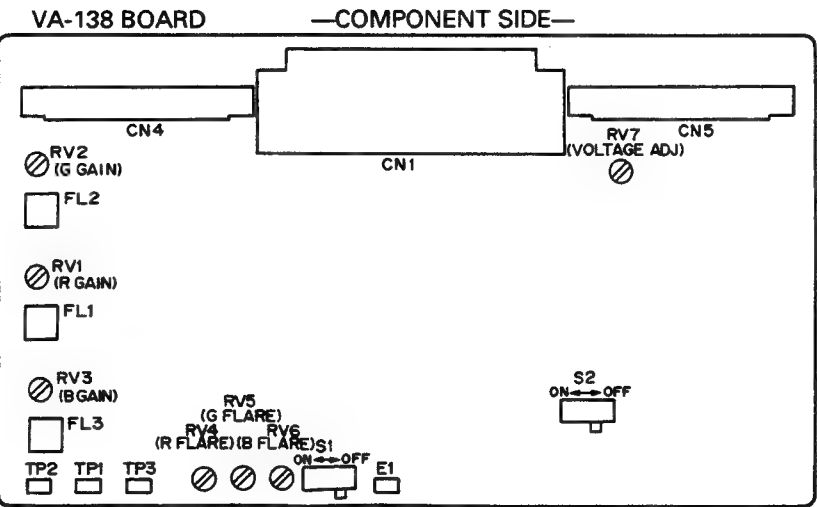
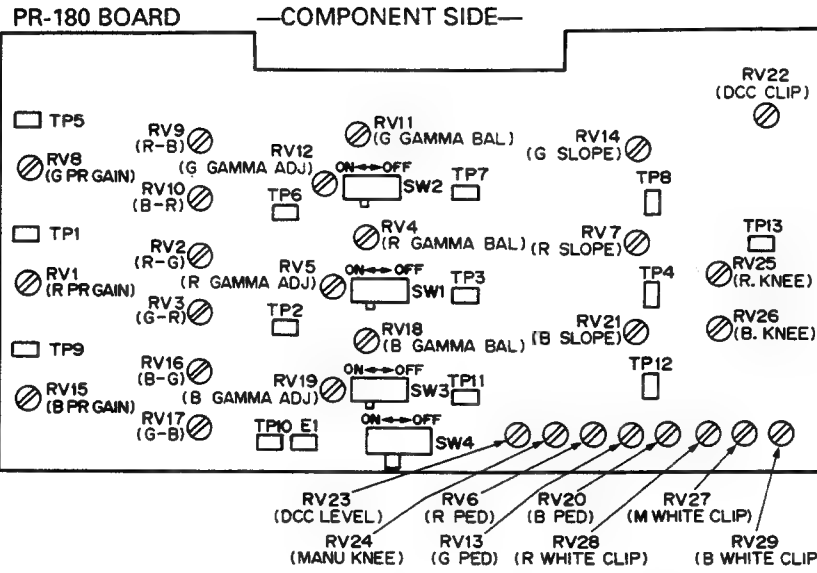
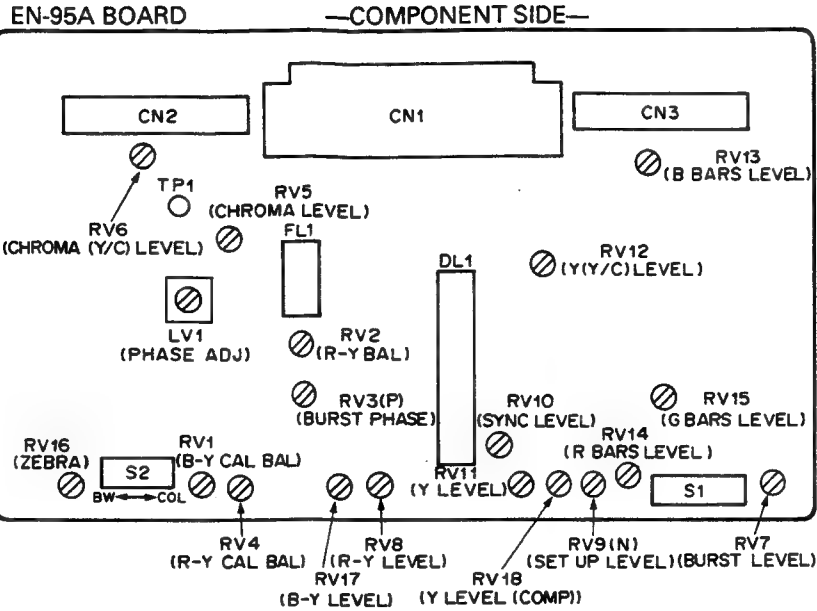
EN-95A BOARD —COMPONENT S



VA-138 BOARD —COMPONENT S



point	Spec.	Remark
A	$1.4 \pm 0.02$ Vp-p	
A	The carrier leakage at gray portion is minimum	
A	White beam spot → Center	Be sure to use a vector scope compatible with setup level "0".
	Burst 75% Position	
	Beam spots of each color → inside the  mark	
A	$40 \pm 1$ IRE (NTSC)/ $300 \pm 7$ mV (PAL)	
	$7.5 \pm 0.5$ IRE (NTSC)	
A	$100 \pm 1$ IRE (NTSC)/ $700 \pm 7$ mV (PAL)	
A	Y Level : 714 mV (NTSC) : 700 mV (PAL)	
A	700 mV (NTSC) 525 mV (PAL)	
A	Y Level : 700 mV	VTR Switch/CA-537/537P → 3
	Burst Level : 290 mV (NTSC)/305 mV (PAL)	
	$+4.6 \pm 0.05$ V	
	Video Level : $500 \pm 5$ mV	Lens Iris $F \approx 8.0$
3		
	The phase of CH1 is aligned to CH2.	Observe the trailing edge of the white level.
	$1400 \pm 10$ mV	
	The waveform becomes flat.	Make the gain of CH1 and CH2 equal. Put the CH1 into the GAIN ADD mode and the CH2 into the INVERT mode.
	The waveform becomes flat.	
)	White Level : 1.4 V	
)	Crosspoint : 880 mV	
)	White Level : 1.4 V	
)		
)	White beam spot → Center	Be sure to use a vector scope compatible with setup level "0".
)	Level : $38 \pm 5$ mV (NTSC) : $45 \pm 5$ mV (PAL)	
)		Be sure to use a vector scope compatible with setup level "0".
)	Level : 104 IRE (NTSC) : 728 mV (PAL)	
)	Carrier leakage is minimized.	
)		
)		
)	Clip : 115 IRE (NTSC) : 805 mV (PAL)	
)	Carrier of white portion is minimized	



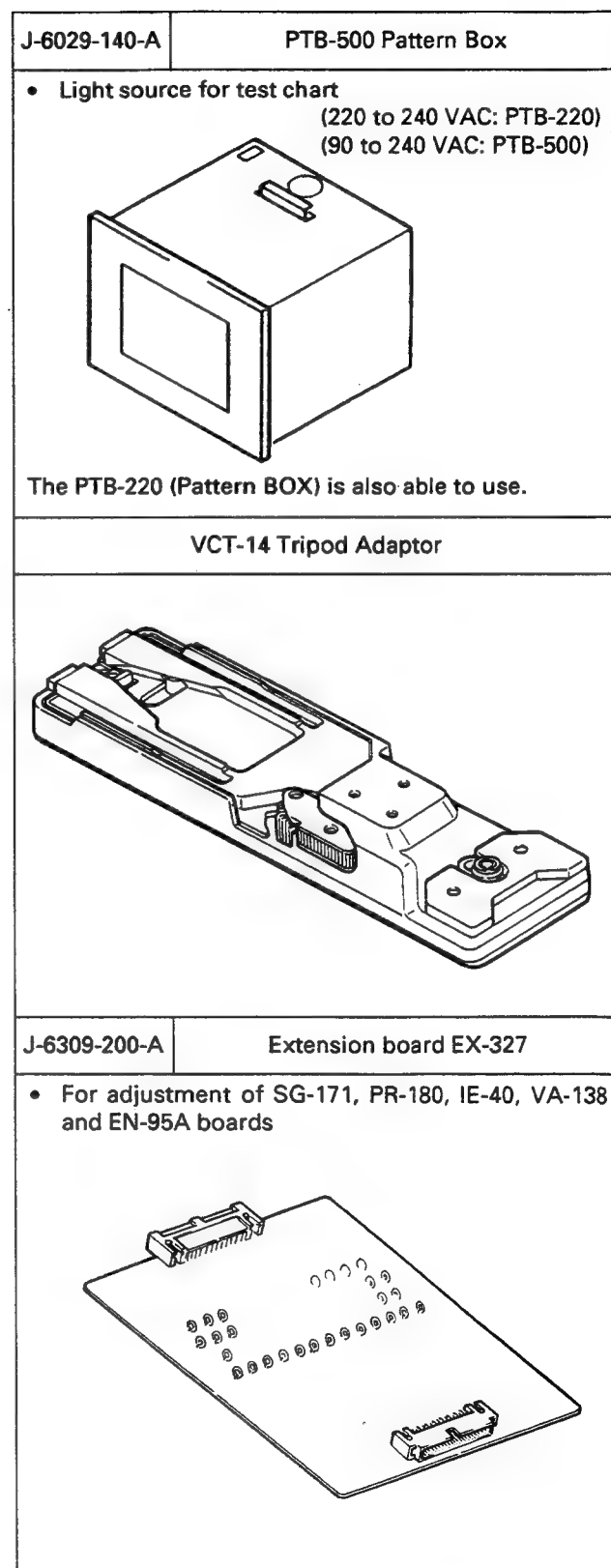
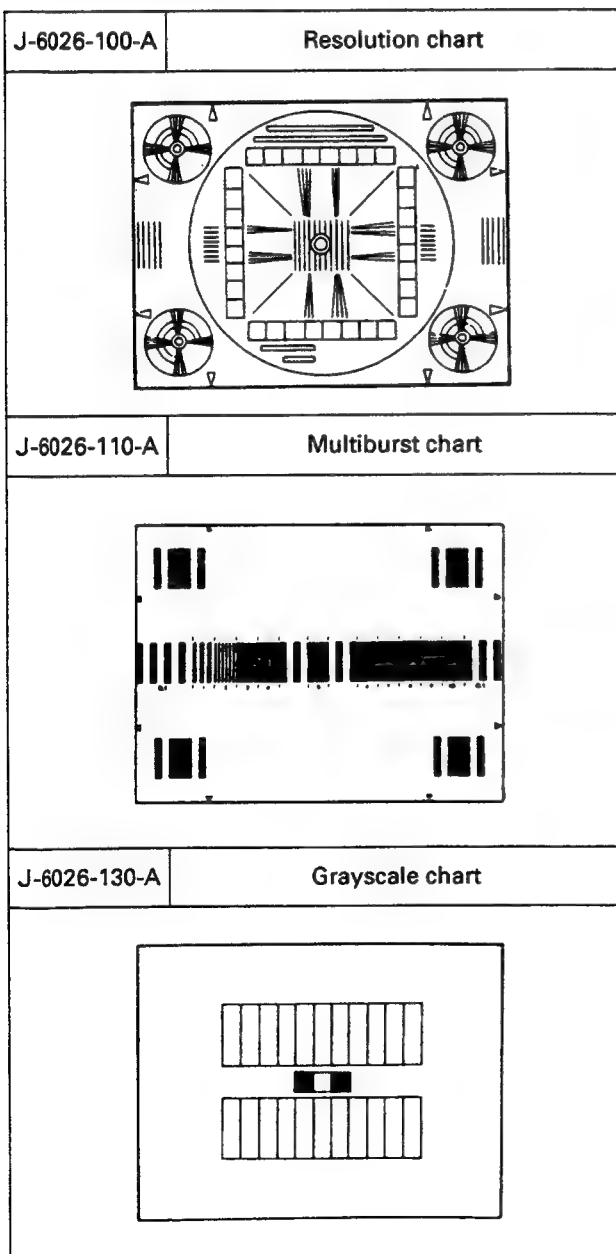
## SECTION 3

### ALIGNMENT

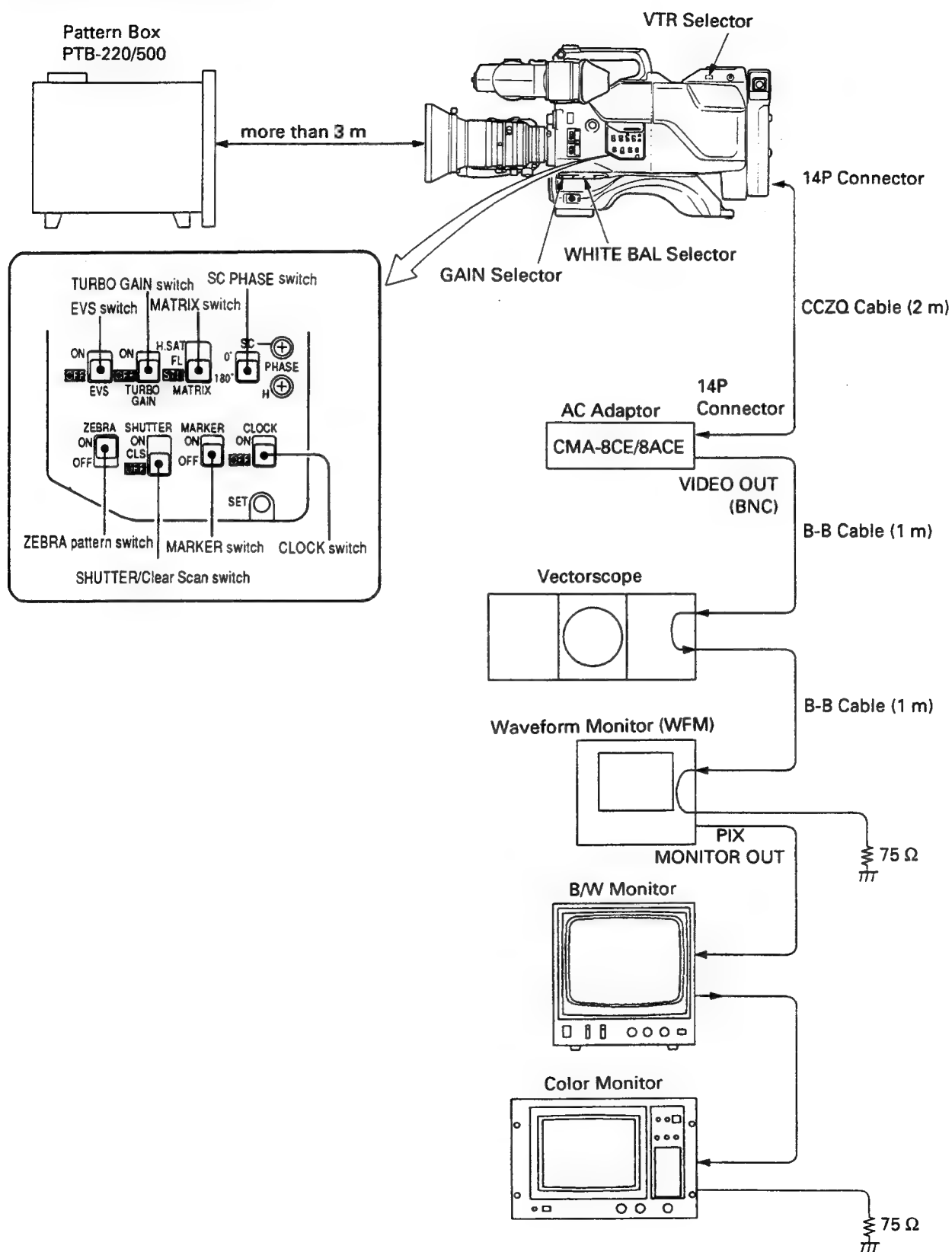
### 3-1. PREPARATION

#### 3-1-1. Equipment Required

- Oscilloscope (more than 100 MHz)
- Waveform monitor
- Vectorscope
- Black and white monitor (Sony PVM-91CE/122CE or equivalent)
- Color Monitor (Sony PVM-1320 or equivalent)
- AC Adaptor (Sony CMA-8CE/8ACE)
- Frequency counter
- Camera adaptor (CA-537P)



### 3-1-2. Connections and Initial Setting





### 3-1-3. Initial Setting

Set the camera switches and controls as follows.

GAIN switch : 0 dB  
 OUTPUT switch : CAM (DCC OFF)  
 WHITE BAL switch : PRESET  
 FILTER knob : 1

VTR SELECT switch (CA-537P) : 1  
 IRIS (Lens) : Manual  
 ZOOM (Lens) : Manual

S1 (ZEBRA)/AT-78 board : OFF  
 S5 (SHUTTER)/AT-78 board : OFF  
 S6 (A. IRIS MODE)/AT-78 board : STD  
 S7 (ATW)/AT-78 board : OFF  
 S8 (TURBO GAIN)/AT-78 board : OFF  
 S9 (EVS)/AT-78 board : OFF  
 S10 (SC 0/180)/AT-78 board : OFF  
 S11 (ADJ)/AT-78 board : ON  
 S12 (MARKER)/AT-78 board : OFF  
 S13 (MATRIX)/AT-78 board : STD  
 S15 (CLOCK)/AT-78 board : OFF  
 S1 (DTL)/IE-40 board : OFF

**Note:** 1. During the adjustment, do not touch the following switch.

- S11 (ADJ)/AT-78 board

2. Confirm that the GAIN switch is set as follows.

HIGH : 18 dB  
 MID : 9 dB  
 LOW : 0 dB

### 3-1-4. Notes on Adjustment

When replacing the CCD block and the VA-138 board, be sure to perform the following adjustment before the adjustment of 3-5. Video Signal System. The adjustment procedure is described in section 3-9.

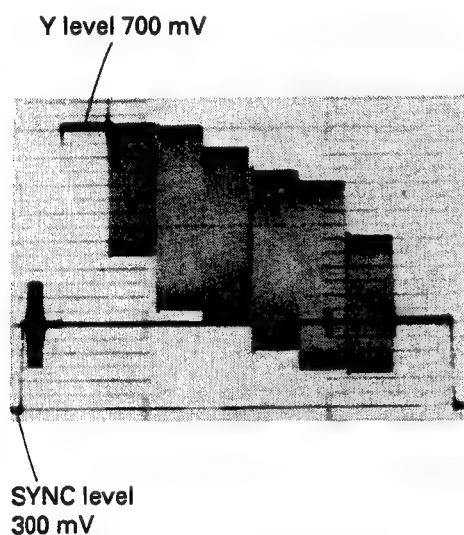
Adjustment	Replacement of CCD Block	Replacement of VA-138 Board
BLACK SET Adjustment	○	○
Shading Balance Adjustment		○
White Shading Adjustment	○	○
PRE KNEE Adjustment		○

## 3-2. BEFORE ADJUSTMENT

- Note:** 1. Before adjustment, connect the equipments referring to Item 3-1-2. Connections.  
2. Before adjustment, set the POWER switch to ON and allow for 10 minute warm-up time.

### 3-2-1. Color Bar Signal

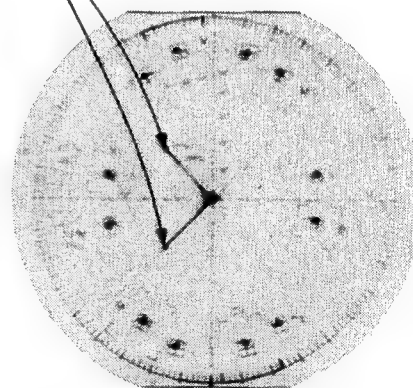
Equipment : Vectorscope, Waveform monitor  
Preparation : Set the OUTPUT switch on the side of the camera to BARS.  
Specifications :



#### Chroma level

- Confirm that the beam spots of each color (R, YL, G, CY, G, CY, B, and MG) are inside the "田" mark.

Burst Spot 75%



- Note:** Partial difference between scale and signal level is caused by photographic error.  
: If the specifications are not met, carry out Item 3-4.  
ENCODER SYSTEM (EN-95A board) adjustment.



### 3-2-2. Sensitivity Measurement

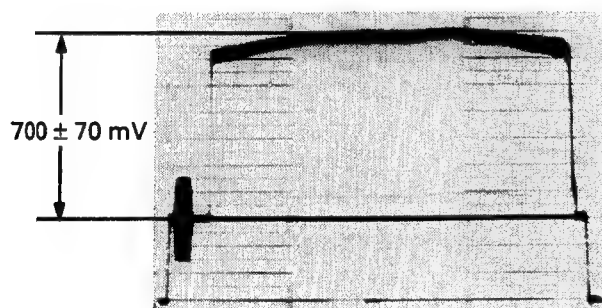
Object : White pattern  
Light : 3200K, 2000 lux  
(If the pattern box "PTB-220/500" is used, set the AUTO mode)

Preparation :

- Adjust the zoom control at "TELE" so that the white pattern frame matches the underscanned picture frame on the screen.
- Manually set the iris control to F8.
- Set the OUTPUT switch on the side of the camera to CAM.
- Set the WHITE BAL switch on the side of the camera to PRESET.

Equipment : Waveform monitor

Specifications :  $700 \pm 70$  mV



**Note:** If the specification is not met, perform all adjustments in Item 3-5. VIDEO SIGNAL SYSTEM.

### 3-2-3. Gamma and Gradation Measurement

Object : Grayscale chart  
(Sony parts number J-6026-130-A)

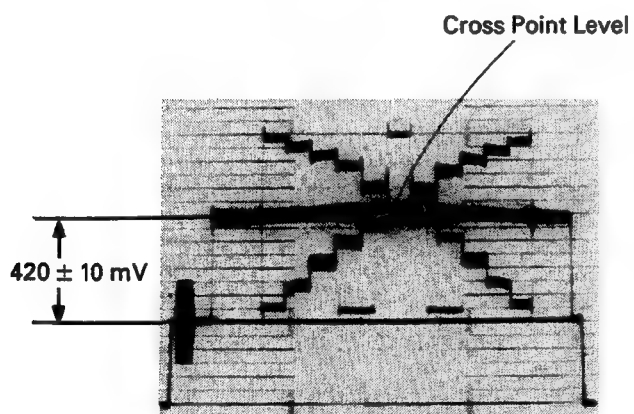
Light : Pattern box PTB-220/500

Equipment : Waveform monitor

Preparation :

- Set the OUTPUT switch on the side of the camera to CAM.
- Set the WHITE BAL switch on the side of the camera to PRESET.
- Adjust the zoom control so that the Grayscale chart frame matches the underscanned picture frame on the screen.
- Adjust the iris control so that the white level of Grayscale chart is 700 mV on the waveform monitor.

Specifications : Confirm that the cross point level of the Grayscale chart is  $420 \pm 10$  mV.



**Note:** Partial difference between signal level and scale is caused by a photographic error.

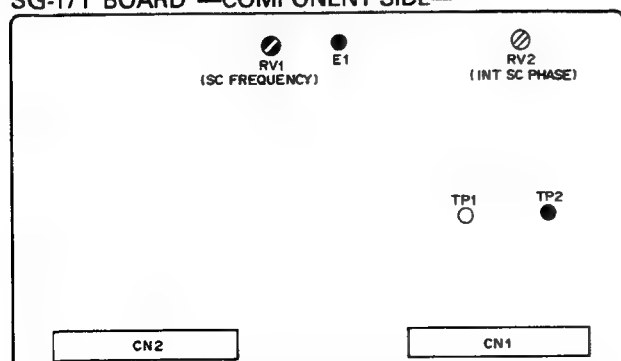
: If the specification is not met, carry out Item 3-5-13. through Item 3-5-20.

### 3-3. SYNC SIGNAL SYSTEM (SG-171 BOARD)

#### 3-3-1. Sub Carrier Frequency Adjustment

Equipment : Frequency counter  
 To be extended : EN-95A board  
 Test point : TP2 (GND: E1)/SG-171 board  
 Adjustment point : ●RV1/SG-171 board  
 Specification :  $4,433,618 \pm 10$  Hz

SG-171 BOARD —COMPONENT SIDE—



### 3-3-2. INT SC Phase Adjustment

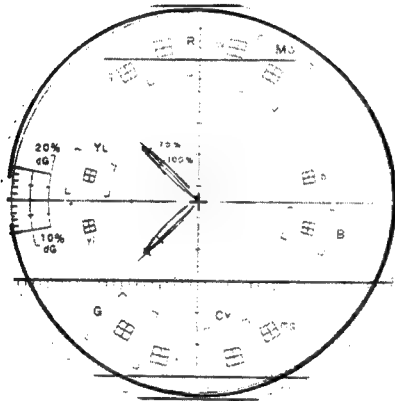
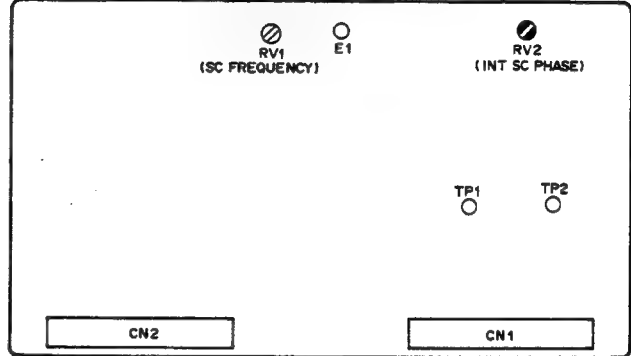
**Note:** Stated below is a procedure with the SC-H phase measuring equipment (Tektronix 1751). If any other equipment is used, perform adjustment at the following adjustment point by reading the instruction manual attached.

Equipment : SC-H phase measuring equipment  
 To be extended : EN-95A board  
 Preparation :  
 • Disconnect the vectorscope and connect the Tektronix 1751 instead.  
 • Put the Tektronix 1751 to SC-H mode.  
 Test point : VIDEO OUT connector (side panel)  
 Adjustment point : ●RV2 (INT SC PHASE)/SG-171 board  
 Specification : See below.

#### Adjustment Procedures

1. Adjust the phase relationship between SC (burst) and H beam spot correctly with ●RV2 (INT SC PHASE).

SG-171 BOARD —COMPONENT SIDE—



**Note:** After the adjustment, disconnect Tektronix 1751 and connect the vectorscope.

### 3-4. ENCODER SYSTEM (EN-95A BOARD)

#### 3-4-1. Carrier Balance Adjustment

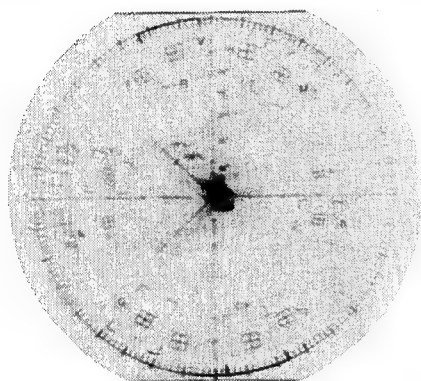
Equipment : Vectorscope (MAX GAIN)

To be extended : EN-95A board

Preparation :

- Set the OUTPUT switch on the side of the camera to BARS.

Adjustment : Adjust  $\odot$ RV1 and  $\odot$ RV4/EN-95A board so that the white beam spot is in the center of the vectorscope.



#### 3-4-2. BARS Level Adjustment

Equipment : Oscilloscope, Waveform monitor

To be extended : EN-95A board

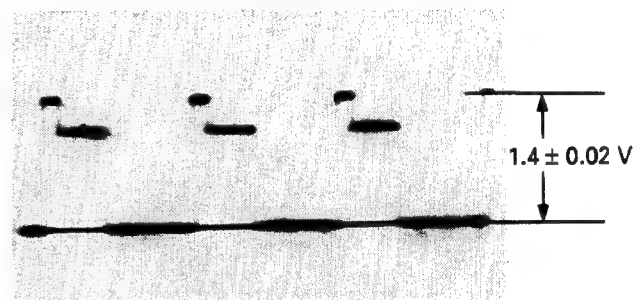
Preparation :

- OUTPUT switch (camera side panel) → BARS
- S1/IF-313 board (CA-537P) → RGB (upper side)

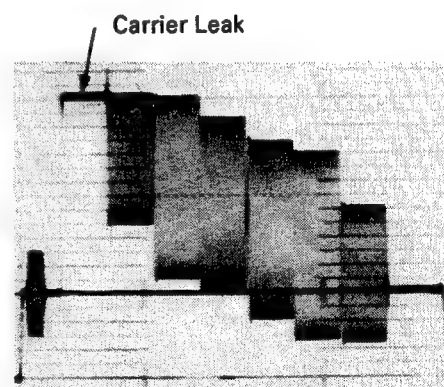
Trigger : HD (pin B18/extension board)

Adjustment :

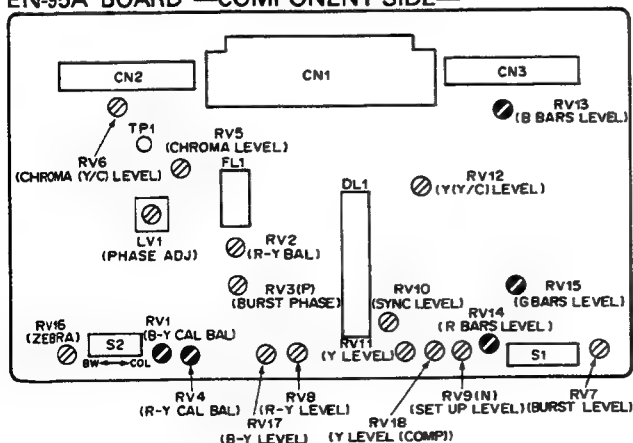
1. Adjust  $\odot$ RV15/EN-95A board so that the video level at pin A6 (GND: pin A8)/extension board is  $1.4 \pm 0.02$  V.



2. Adjust  $\odot$ RV13,  $\odot$ RV14/EN-95A board so that the carrier leakage at white portion is minimum.



EN-95A BOARD —COMPONENT SIDE—



### 3-4-3. Color Vector Adjustment

Equipment : Vectorscope

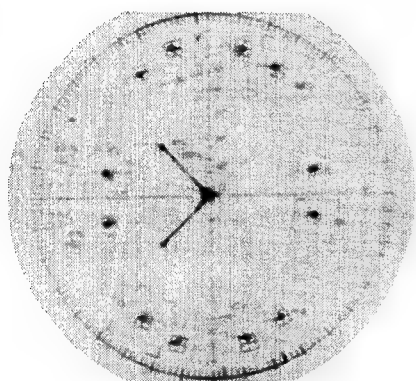
To be extended : EN-95A board

Preparation :

- Set the GAIN switch on the vectorscope to 75%.
- Adjust "PHASE" control on the Vectorscope so that the burst spot is set to the 75% axis. Set the OUTPUT switch on the side of the camera to BARS.

Adjustment :

1. Adjust  $\odot$ RV2,  $\odot$ RV5 and  $\odot$ LV1/EN-95A board so that the beam spot of each color are inside the "田" mark.
2. Adjust  $\odot$ RV3 and  $\odot$ RV7/EN-95A board so that the burst spots is positioned at the 75% scale.



### 3-4-4. Y. SYNC Level Adjustment

Equipment : Waveform monitor

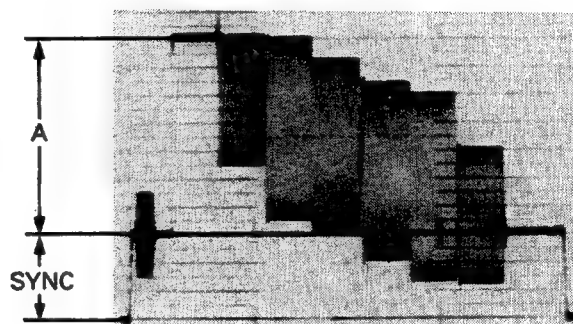
To be extended : EN-95A board

Preparation :

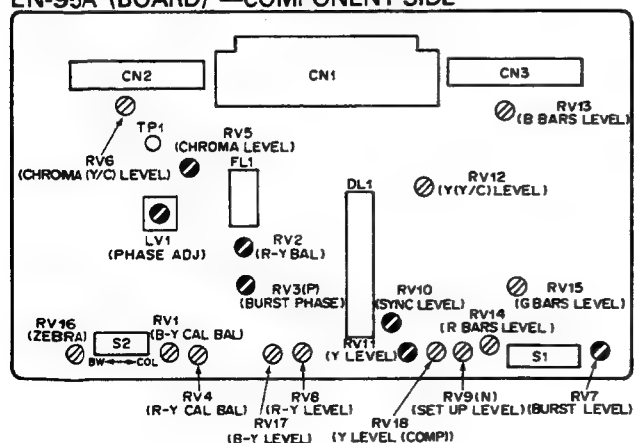
- Set the OUTPUT switch on the side of camera to BARS.

Adjustment :

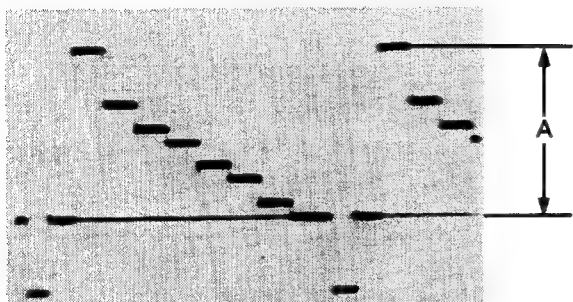
1. Adjust  $\odot$ RV11/EN-95A board so that the A level of the color bars signal is  $700 \pm 7$  mV.
2. Adjust  $\odot$ RV10/EN-95A board so that the SYNC level of the color bars signal is  $300 \pm 7$  mV.



EN-95A (BOARD) —COMPONENT SIDE—



Equipment : Oscilloscope  
Preparation :  
• OUTPUT switch (camera side panel) → BARS  
• S1/IF-313 board (CA-537P) → center position  
To be extended : EN-95A board  
Adjustment point : ●RV18/EN-95A board  
Test point : pin A6 (GND: pin A8)/EN-95A board  
Trigger : HD (pin B18/extension board)  
Specification : A =  $700 \pm 10$  mV



Equipment : Oscilloscope  
To be extended : EN-95A board  
Preparation :  
• OUTPUT switch (camera side panel) → BARS  
Test point : pin A5 (GND: pin A8)/extension board  
Trigger : HD (pin B18/extension board)  
Adjustment point : ⚙RV17/EN-95A board  
Specifications : A =  $525 \pm 10$  mV

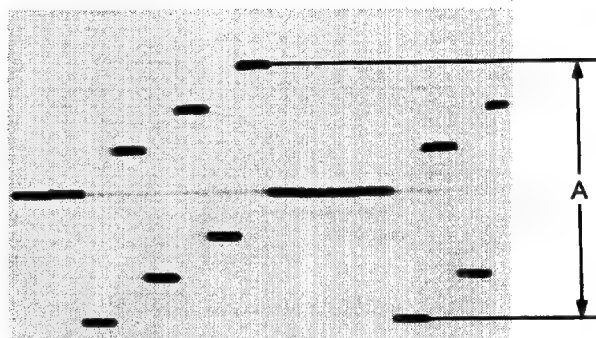
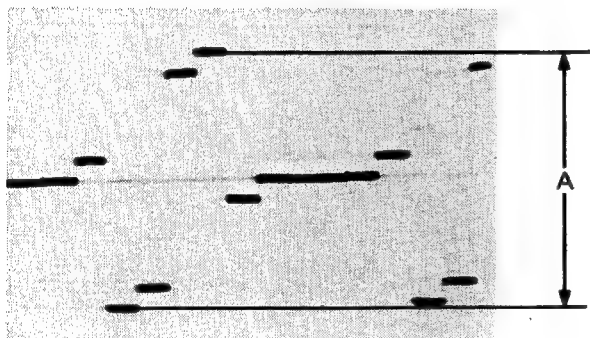


Diagram of the EN-95A BOARD COMPONENT SIDE. The board features several components and their connections:

- Connectors:** CN2, CN1, CN3.
- Resistors:** RV6 (CHROMA (Y/C) LEVEL), RV5 (CHROMA LEVEL), RV13 (8 BARS LEVEL), RV12 (Y(Y/C) LEVEL), RV2 (R-Y BAL), RV10 (SYNC LEVEL), RV15 (GBARS LEVEL), RV14 (R BARS LEVEL), RV16 (ZEBRA), RV1 (B-Y CAL BAL), RV3 (P) (BURST PHASE), RV11 (Y LEVEL), RV9 (N) (SET UP LEVEL) (BURST LEVEL), RV7 (R-Y LEVEL), RV4 (R-Y CAL BAL), RV8 (R-Y LEVEL), RV17 (Y LEVEL), RV18 (Y LEVEL (COMP)).
- Capacitors:** TP1, FL1, DL1.
- Other Components:** LV1 (PHASE ADJ), S2 (BW → COL), S1.

### 3-4-7. R-Y OUT Level Adjustment

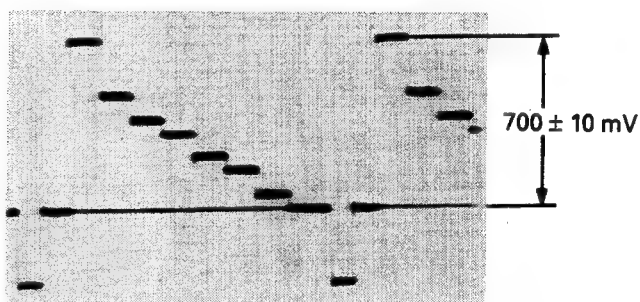
Equipment : Oscilloscope  
 To be extended : EN-95A board  
 Preparation :  
 • OUTPUT switch (camera side panel) → BARS  
 Test point : pin A7(GND: pin A8)/extension board  
 Trigger : HD (pin B18/extension board)  
 Adjustment point : RV8/EN-95A board  
 Specifications :  $A = 525 \pm 10$  mV



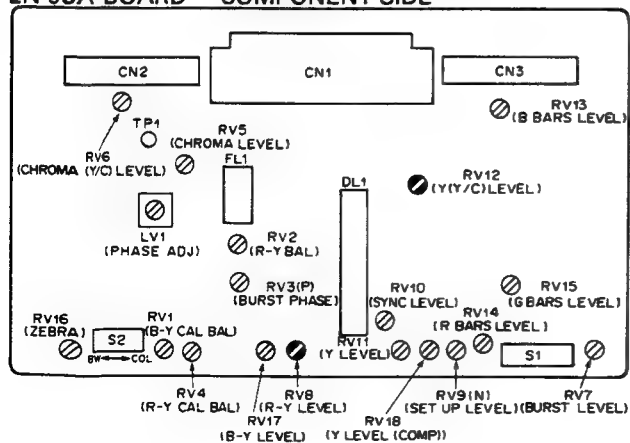
### 3-4-8. S-VHS VTR-Y Level Adjustment

**Note:** Before this adjustment, carry out Item 3-4-4. Color Vector Adjustment.

Equipment : Oscilloscope  
 To be extended : EN-95A board  
 Preparation :  
 • Set the OUTPUT switch on the side of camera to BARS.  
 Test point : pin A9 (GND: pin A10)/extension board  
 Adjustment :  
 Adjust RV12/EN-95A board so that the white level of Y signal is  $700 \pm 10$  mV.



EN-95A BOARD —COMPONENT SIDE—

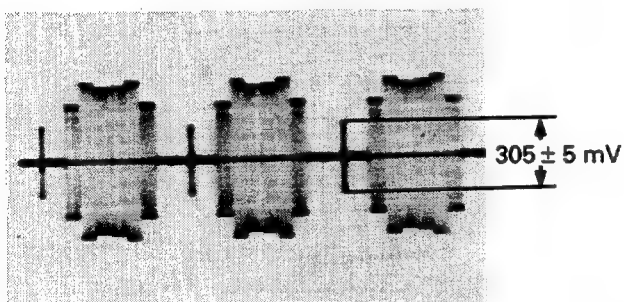




### 3-4-9. S-VHS VTR-Chroma Level Adjustment

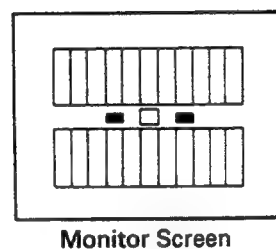
**Note:** Before this adjustment, carry out Item 3-4-4. Y SYNC Level Adjustment.

Equipment : Oscilloscope  
 To be extended : EN-95A board  
 Preparation :  
 • Set the OUTPUT switch on the side of the camera to BARS.  
 Test point : pin A11 (GND: pin A12)/extension board  
 Adjustment :  
 Adjust  $\text{RV6/EN-95A board}$  so that the burst level in the chroma signal is  $305 \pm 5 \text{ mV}$ .

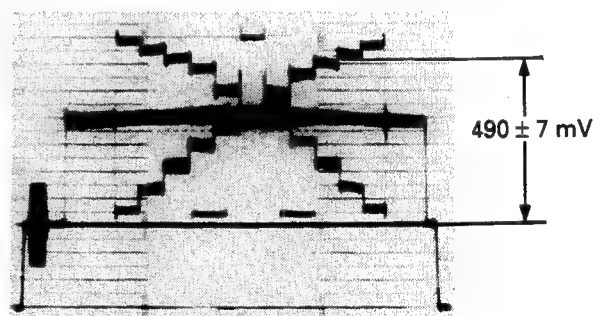


### 3-4-10. Zebra Adjustment

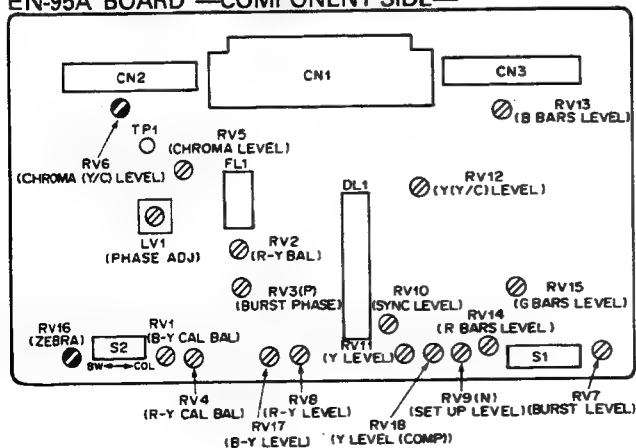
Object : Grayscale chart  
 Equipment : Viewfinder  
 Waveform monitor  
 To be extended : EN-95A board  
 Preparation :  
 • Set the OUTPUT switch on the side of the camera to CAM (DCC OFF).  
 • Set the S1 (ZEBRA ON/OFF) switch on the AT-78 board to ON.  
 Adjustment :  
 1. Adjust the zoom control of the lens so that the chart frame matches the underscanned picture frame on the screen.



2. Adjust the iris control so that the video level at VIDEO OUT connector (camera side panel) is  $490 \pm 7 \text{ mV}$ .

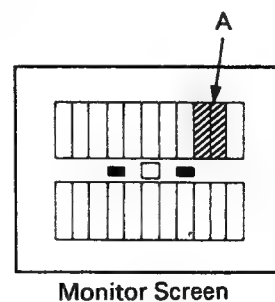


EN-95A BOARD —COMPONENT SIDE—



3. Adjust  $\text{RV16/EN-95A board}$  so that the zebra pattern appears on the portion A of the viewfinder screen.

Zebra Pattern



**Note:** After adjustment, set the S1/AT-78 board to OFF.

## 3-5. VIDEO SIGNAL SYSTEM (VA-138/PR-180 BOARD)

### 3-5-1. VOLTAGE Adjustment

**Note:** This adjustment influences operation of PR-180, IE-40 board.

Therefore, when this adjustment is carried out, all of following adjustments in VIDEO PROCESS SYSTEM and DETAIL SIGNAL SYSTEM must be confirmed. Perform adjustment when measured voltage is more than  $\pm 1\%$  with respect to the specified voltage.

Equipment : Digital voltmeter  
To be extended : VA-138 board  
Test point : CN3-pin 11/VA-138 board  
(GND: pin A1/extension board)  
Adjustment point :  $\odot$ RV7/VA-138 board  
Specifications :  $+4.6 \pm 0.05$  Vdc

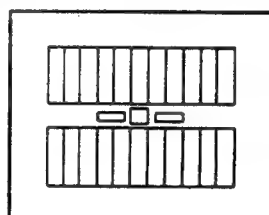
### 3-5-2. G ch Video Level Adjustment

**Note:** After this adjustment, perform the Item 3-5-3. and the Item 3-5-4. adjustment.

Object : Grayscale chart  
Equipment : Oscilloscope  
To be extended : VA-138 board  
Preparation :  
• WHITE BAL switch (camera side panel)  $\rightarrow$  PRESET  
• OUTPUT switch (camera side panel)  $\rightarrow$  CAM (DCC OFF)

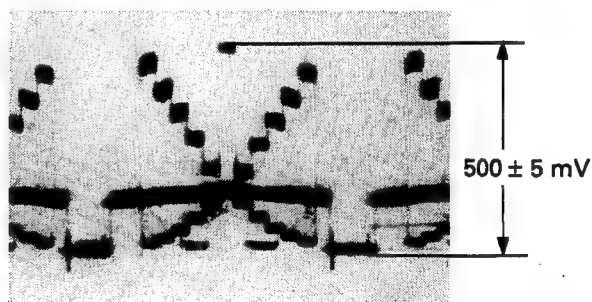
Trigger : pin A5/extension board  
Adjustment :

1. Adjust the zoom control so that the chart frame matches the underscanned picture frame on the screen.



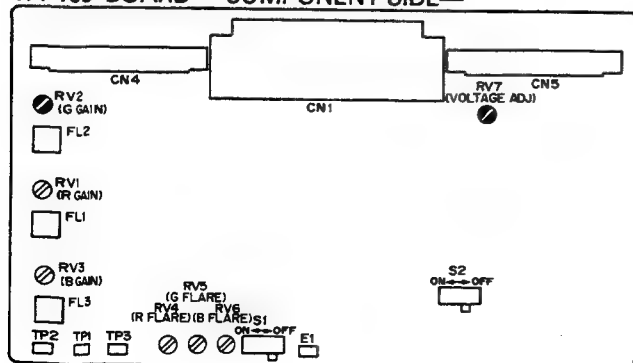
Monitor Screen

2. Manually set the iris control to F8.
3. Adjust  $\odot$ RV2/VA-138 board so that the video level at TP12/IE-40 board is  $500 \pm 5$  mV.



**Note:** Do not adjust the iris control until the Item 3-5-3. and the Item 3-5-4. are completed.

VA-138 BOARD —COMPONENT SIDE—



### 3-5-3. B ch Video Level Adjustment

**Note:** Be sure carry out Item 3-5-2. G ch Video Level Adjustment before this adjustment.

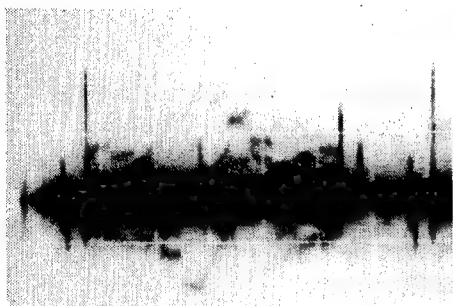
Object : Grayscale chart  
Equipment : Oscilloscope  
To be extended : VA-138 board  
Preparation :

- WHITE BAL switch (camera side panel) → PRESET
- OUTPUT switch (camera side panel) → CAM (DCC OFF)

Trigger : pin A5/extension board

Adjustment :

1. Adjust the zoom control so that the chart frame matches the underscanned picture frame on the screen.
2. Connect CH-1 of oscilloscope to TP12 (GND: E1)/IE-40 board, and make sure that the video level is  $500 \pm 5$  mV.
3. Connect CH-2 of oscilloscope to TP9 (GND: E1)/PR-180 board, and adjust  $\odot$ RV3/VA-138 board so that the video level is about 500 mV.
4. Set the oscilloscope to ADD mode and CH-2 INVERT mode.
5. Readjust  $\odot$ RV3/VA-138 board so that the waveform becomes flat.



### 3-5-4. R ch Video Level Adjustment

**Note:** Be sure to carry out Item 3-5-2. G ch Level Adjustment before this adjustment.

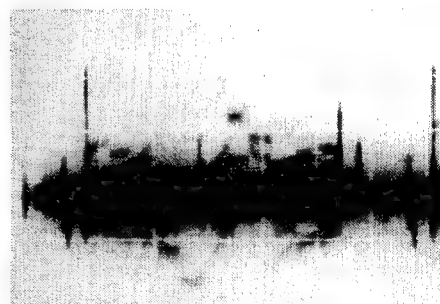
Object : Grayscale chart  
Equipment : Oscilloscope  
To be extended : VA-138 board  
Preparation :

- Set the OUTPUT switch on the side of the camera to CAM.
- Set the WHITE BAL switch on the side of the camera to PRESET.

Trigger : pin A5/extension board

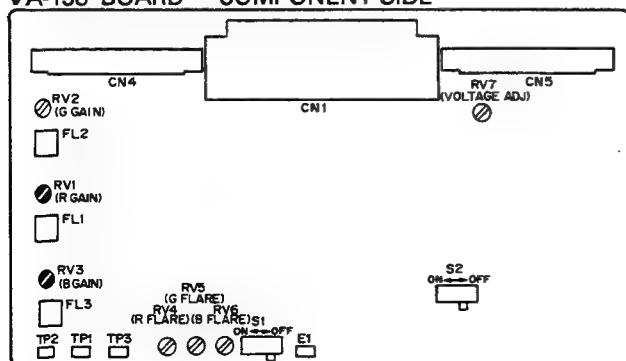
Adjustment :

1. Adjust the zoom control so that the chart frame matches the underscanned picture frame on the screen.
2. Connect CH-1 of oscilloscope to TP12 (GND: E1)/IE-40 board, and make sure that the video level is  $500 \pm 5$  mV.
3. Connect CH-2 of oscilloscope to TP1 (GND: E1)/PR-180 board, and adjust  $\odot$ RV1/VA-138 board so that the video level is about 500 mV.
4. Set the oscilloscope to ADD mode and CH-2 INVERT mode.
5. Readjust  $\odot$ RV1/VA-138 board so that the waveform becomes flat.



**Note:** Do not adjust the iris control until the Item 3-5-4. are completed.

VA-138 BOARD —COMPONENT SIDE—



### 3-5-5. Pedestal Adjustment

Lens iris : Close "C"  
Equipment : Oscilloscope, Vectorscope  
(MAX GAIN)

Preparation :

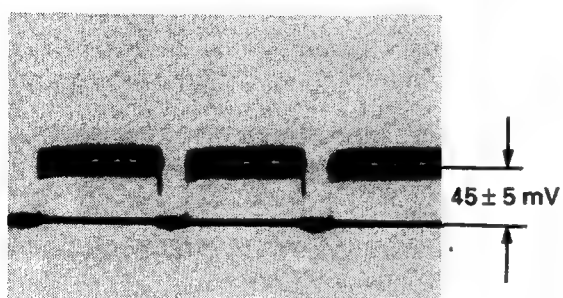
- Set the S11 (ADJ) switch on the AT-78 board to ON.

To be extended : VA-138 board

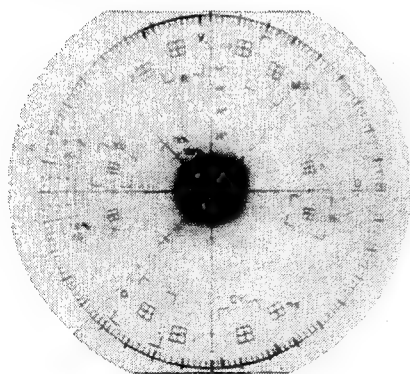
Test point : TP8 (GND: E1)/PR-180 board

Adjustment :

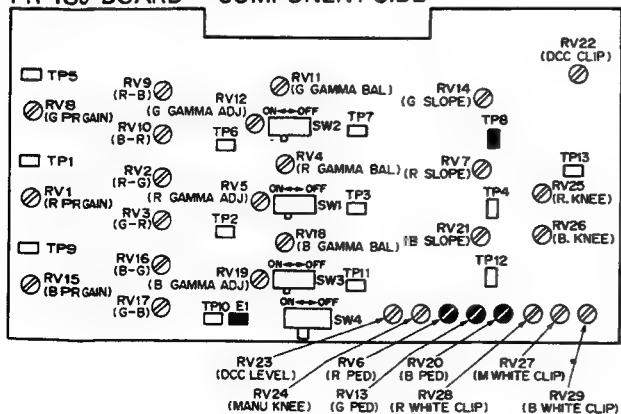
- Set the GAIN switch on the side of the camera to 0 dB.
1. Adjust  $\odot$ RV13/PR-180 board so that the pedestal level is  $45 \pm 5$  mV.



2. Adjust  $\odot$ RV6 and  $\odot$ RV20/PR-180 board so that the beam spot is in the center of the vectorscope.



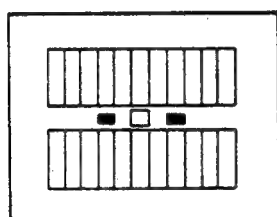
PR-180 BOARD —COMPONENT SIDE—



### 3-5-6. 1H GAIN Adjustment

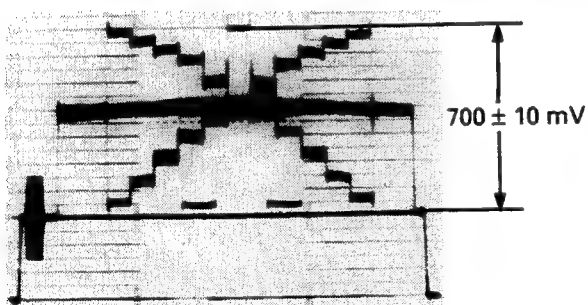
Object : Grayscale chart  
 Equipment : Oscilloscope, Waveform monitor  
 To be extended : VA-138 board  
 Preparation :  
 • Set the OUTPUT switch on the side of the camera to BARS.  
 • Set the WHITE BAL switch on the side of the camera to PRESET.  
 Test point : CH1: TP12(GND: E1)/IE-40 board  
 CH2: TP2/IE-40 board  
 Trigger : pin A5/extension board  
 Adjustment point : RV1/IE-40 board  
 Adjustment :

1. Adjust the zoom control of the lens so that the chart frame matches the underscanned picture frame on the screen.



Monitor Screen

2. Adjust the iris control so that the video level at VIDEO OUT connector (camera side panel) is  $700 \pm 10$  mV.

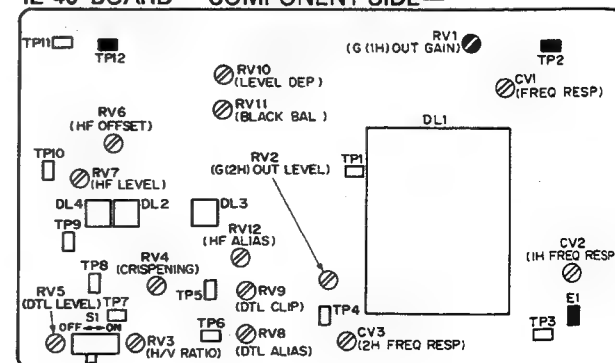


3. Set the oscilloscope to ADD mode and CH-2 INVERT mode.
4. Connect CH-1 and CH-2 of oscilloscope to TP12 (GND: E1)/IE-40 board.  
 Adjust CH2-VAR control on the oscilloscope so that the waveform becomes flat for gain correction.

5. Connect CH-1 of oscilloscope to TP12 (GND: E1)/IE-40 board and CH-2 to TP2/IE-40 board (GND: pin A1/extension board).
6. Adjust RV1/IE-40 board so that the waveform becomes flat.



#### IE-40 BOARD —COMPONENT SIDE—



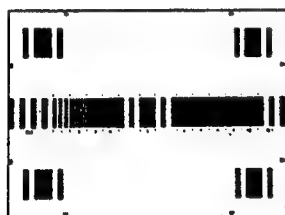


### 3-5-8. 1H OUT Frequency Response Adjustment

**Note:** Perform this adjustment only when replacing a DL1 delay line on the IE-40 board.

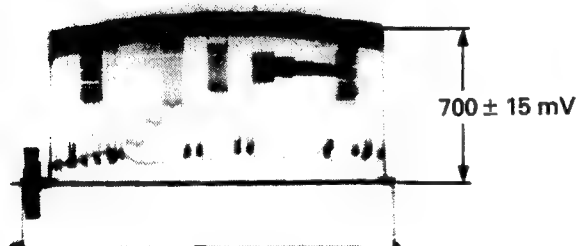
Object : Burst chart  
Equipment : Oscilloscope, Waveform monitor  
To be extended : VA-138 board  
Adjustment :

1. Adjust the zoom control of the lens so that the chart frame matches the underscanned picture frame on the screen.



Monitor Screen

2. Adjust the iris control so that the video level at VIDEO OUT connector (camera side panel) is  $700 \pm 15$  mV.

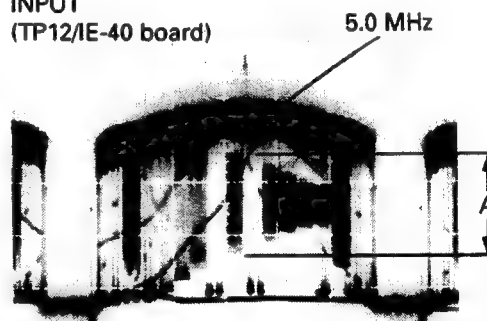


3. Adjust CV1/IE-40 board so that the input level and output level at 5.0 MHz portion are almost equal as shown below.

IE-40 board (GND: E1/PR-180 board)

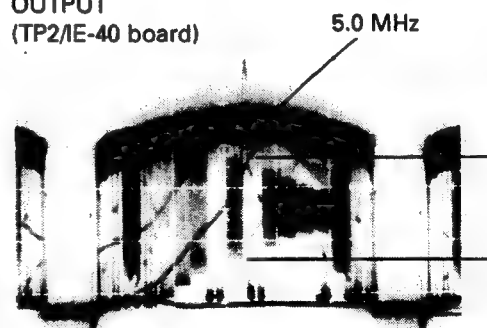
Test point (Input signal)	Test point (Output signal)	Adjusting point	Specification (5.0 MHz)
TP12/IE-40 board	TP2/IE-40 board	CV1	$A \approx B$

INPUT  
(TP12/IE-40 board)

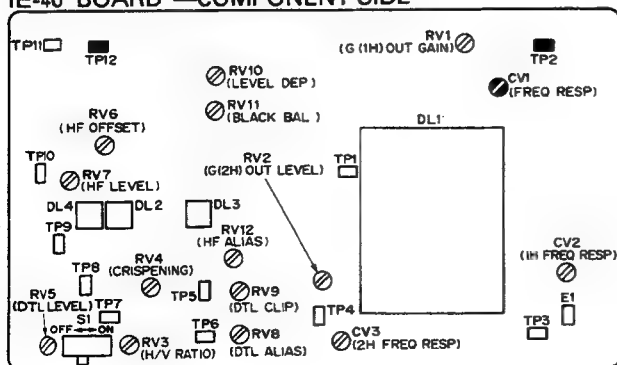


$A \approx B$

OUTPUT  
(TP2/IE-40 board)



#### IE-40 BOARD —COMPONENT SIDE—

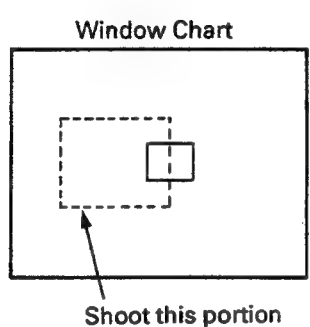


### 3-5-9. 1H OUT Phase Adjustment

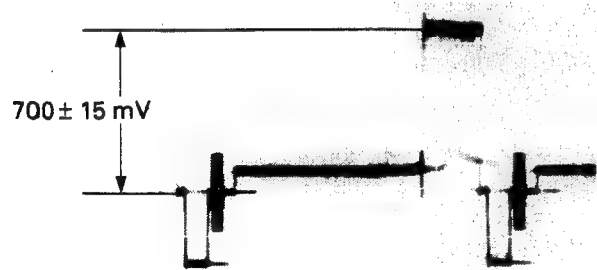
**Note:** Perform this adjustment only when replacing a DL1 delay line on the IE-40 board.

Object : White portion of pattern box  
 Equipment : Oscilloscope, Waveform monitor  
 To be extended : VA-138 board  
 Trigger : pin A5/extension board  
 Adjustment :

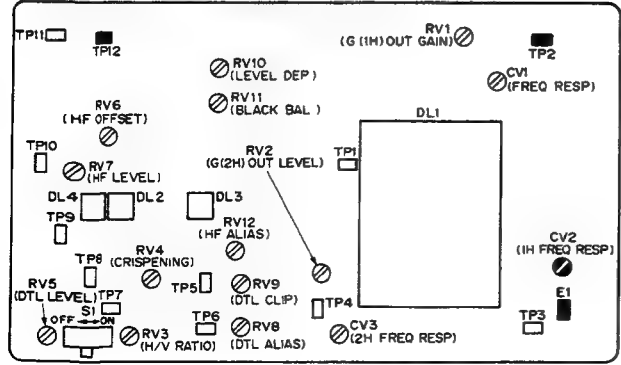
1. Shoot the white portion of the pattern box as shown below.



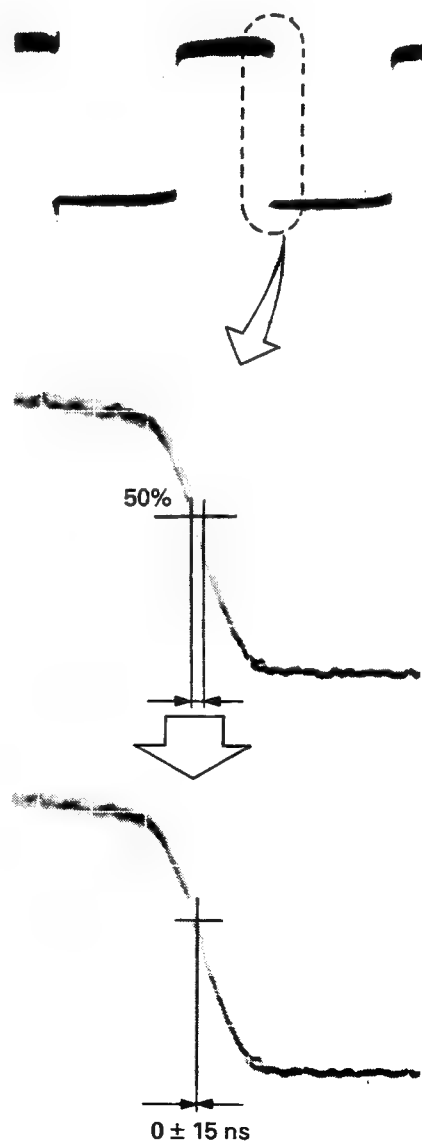
2. Adjust the iris control so that the video level at VIDEO OUT connector (camera side panel) is  $700 \pm 15$  mV.



IE-40 BOARD —COMPONENT SIDE—



3. Connect CH-1 of oscilloscope to TP12 (GND: E1)/IE-40 board.
4. Connect CH-2 of oscilloscope to TP2/IE-40 board (GND: pin A1/extension board).
5. Adjust CV2/IE-40 board so that the waveform phase between the CH1 and CH2 is coincided.



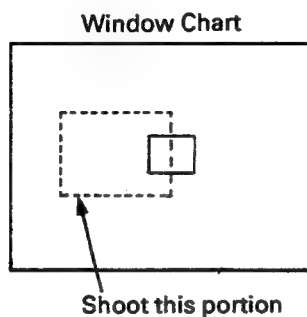


### 3-5-10. 2H OUT Phase Adjustment

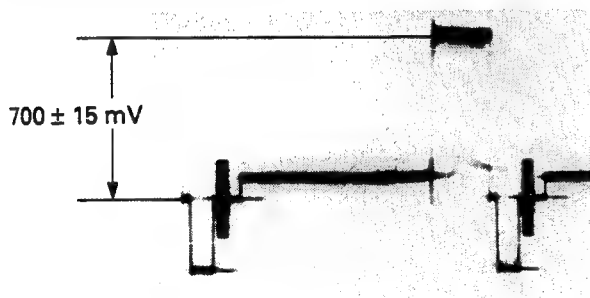
**Note:** Perform this adjustment only when replacing a DL1 delay line on the IE-40 board.

Object : White portion of pattern box  
Equipment : Oscilloscope, Waveform monitor  
To be extended : VA-138 board  
Trigger : pin A5/extension board  
Adjustment :

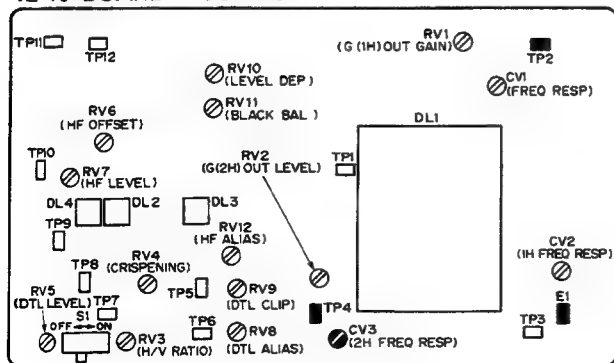
1. Shoot the white portion of the pattern box as shown below.



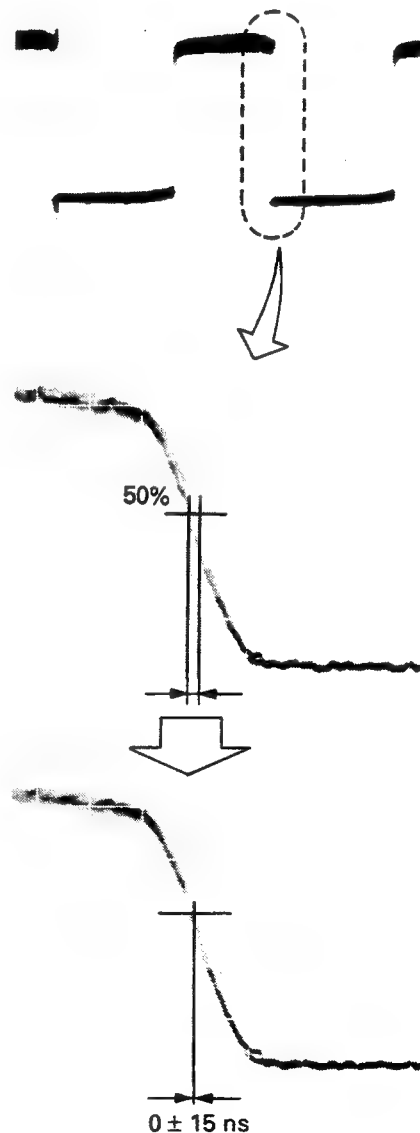
2. Adjust the iris control so that the video level at VIDEO OUT connector (camera side panel) is  $700 \pm 15$  mV.



IE-40 BOARD —COMPONENT SIDE—



3. Connect CH-1 of oscilloscope to TP2 (GND: E1)/IE-40 board.
4. Connect CH-2 of oscilloscope to TP4/IE-40 board (GND: pin A1/extension board).
5. Adjust CV3/IE-40 board so that the waveform phase between the CH1 and CH2 is coincided.



### 3-5-11. G ch GAIN Adjustment

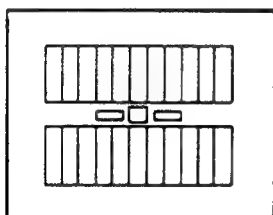
**Note:** The Item 3-5-12. R/B Preset Adjustment must be done before this adjustment.

Object : Grayscale chart  
 Equipment : Oscilloscope  
 To be extended : VA-138 board  
 Preparation :  
 • WHITE BAL switch (camera side panel) → PRESET  
 • OUTPUT switch (camera side panel) → CAM (DCC OFF)

Trigger : pin A5/extension board

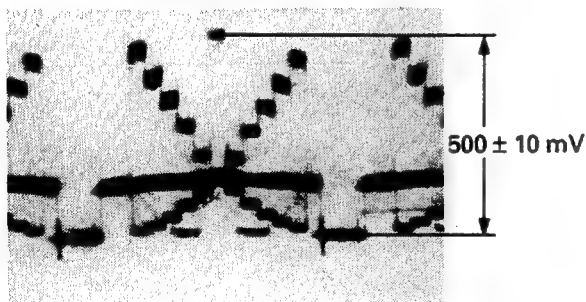
Adjustment :

1. Adjust the zoom control so that the chart frame matches the underscanned picture frame on the screen.



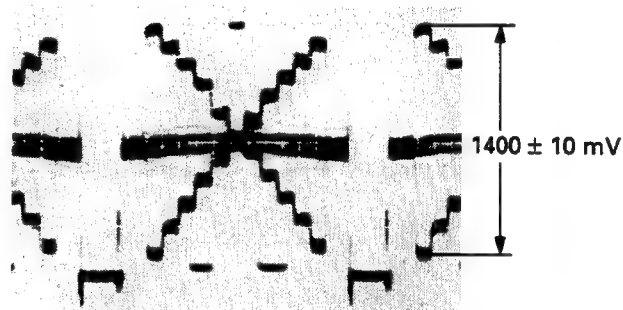
Monitor Screen

2. Adjust the iris control so that the video level at TP5 (GND: E1)/PR-180 board is  $500 \pm 10$  mV.



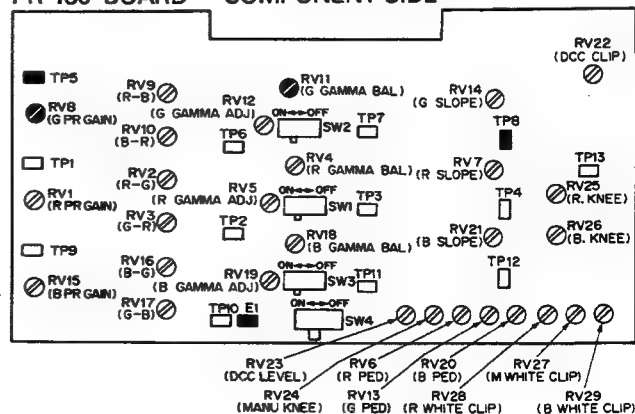
**Note:** Do not adjust the iris control until the Item 3-5-12. are completed.

3. Connect CH-1 of oscilloscope to TP8 (GND: E1)/PR-180 board.
4. Check that the waveform level does not change when SW2 (GAM)/PR-180 board is repeatedly turned ON and OFF. (If it changes, adjust RV11/PR-180 board.)
5. Adjust RV8/PR-180 board so that the video level is  $1400 \pm 10$  mV.



6. After adjustment is completed, set the SW2 (GAM)/PR-180 board to ON.

#### PR-180 BOARD —COMPONENT SIDE—

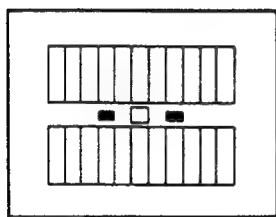


### 3-5-12. R/B PRESET WHITE Adjustment

**Note:** Be sure to complete Item 3-5-11. G-ch GAIN Adjustment.

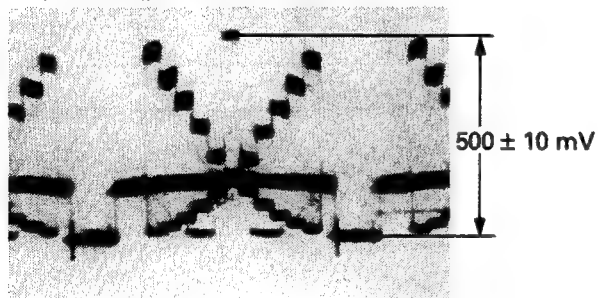
Object : Grayscale chart  
 Equipment : Oscilloscope  
 To be extended : VA-138 board  
 Trigger : pin A5/extension board  
 Adjustment :

1. Adjust the zoom control of the lens so that the chart frame matches the underscanned picture frame on the screen.



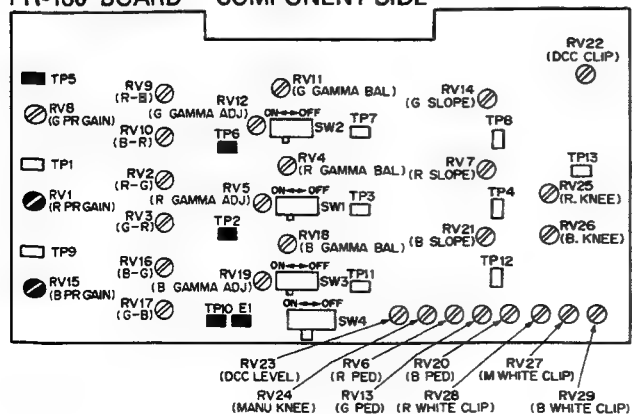
Monitor Screen

2. Adjust the iris control so that the video level at TP5 (GND: E1)/PR-180 board is  $500 \pm 10$  mV.



3. Set the oscilloscope to ADD mode and CH-2 INVERT mode.
4. Connect CH-1 and CH-2 of oscilloscope to TP6 (GND: E1)/PR-180 board.  
 Adjust CH2-VAR control on the oscilloscope so that the waveform becomes flat for gain correction.

PR-180 BOARD —COMPONENT SIDE—



5. Connect CH-1 of oscilloscope to TP6 (GND: E1) and CH-2 to TP2 (GND: E1) on the PR-180 board. Adjust RV1/PR-180 board so that the waveform becomes flat.



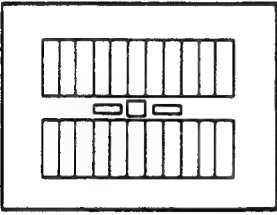
6. Connect CH-1 of oscilloscope to TP6 (GND: E1) and CH-2 to TP10 (GND: E1) on the PR-180 board. Adjust RV15/PR-180 board so that the waveform becomes flat.



3-5-13. G ch Gamma Balance and Gamma Set Adjustment

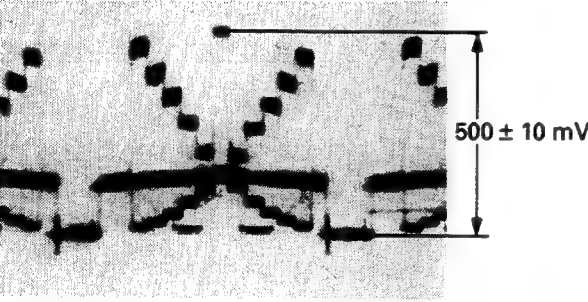
**Note:** After this adjustment, perform the item 3-5-14. and the Item 3-5-15. adjustment.

- Object : Grayscale chart  
Equipment : Oscilloscope  
To be extended : VA-138 board  
Trigger : pin A5/extension board  
Adjustment :  
1. Adjust the zoom control so that the grayscale chart frame matches the underscanned picture frame on the screen.

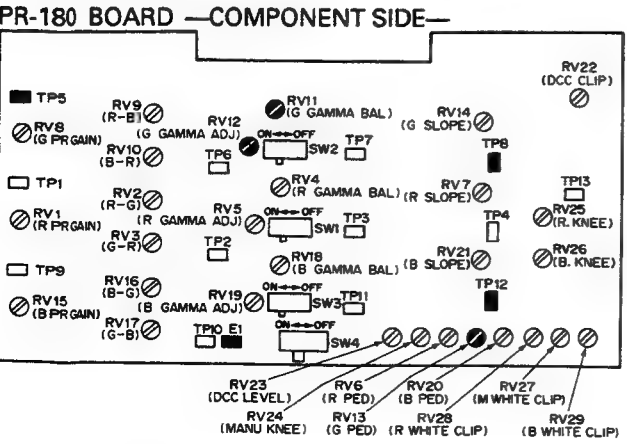


Monitor Screen

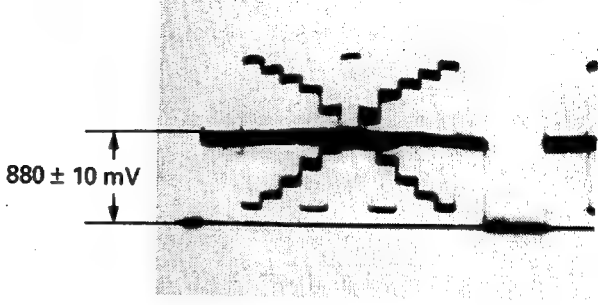
2. Adjust the iris control so that the video level at TP5 (GND: E1)/PR-180 board is  $500 \pm 10$  mV on the oscilloscope.



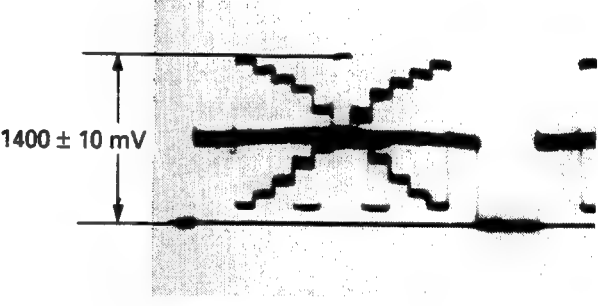
3. Connect a probe of oscilloscope to TP8 (GND: E1)/ PR-180 board.



4. Adjust RV12/PR-180 board so that the cross point level of the video signal is  $880 \pm 10$  mV.



5. Adjust RV11/PR-180 board so that the white level of grayscale chart is  $1400 \pm 10$  mV.



6. Cover the lens with lens cap.  
7. Adjust RV13/PR-180 board so that the pedestal level is  $45 \pm 5$  mV.



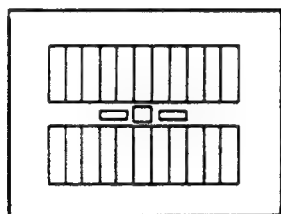
8. Remove the lens cap.  
9. Repeat procedure 4 through procedure 8 several times.  
10. Do not adjust the iris control until the Item 3-5-14. and the Item 3-5-15. are completed.

### 3-5-14. R ch Gamma Balance Adjustment

**Note:** The Item 3-5-13. must be done before this adjustment.

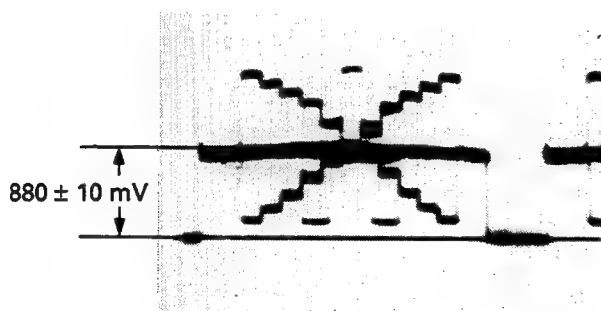
Object : Grayscale chart  
Equipment : Oscilloscope  
To be extended : VA-138 board  
Trigger : pin A5/extension board  
Adjustment :

1. Adjust the zoom control so that the Grayscale chart frame matches the underscanned picture frame on the screen.

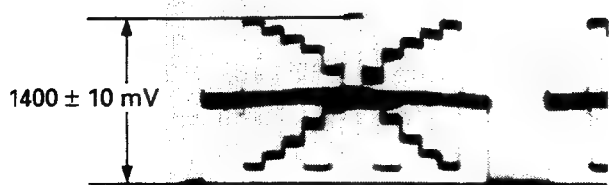


Monitor Screen

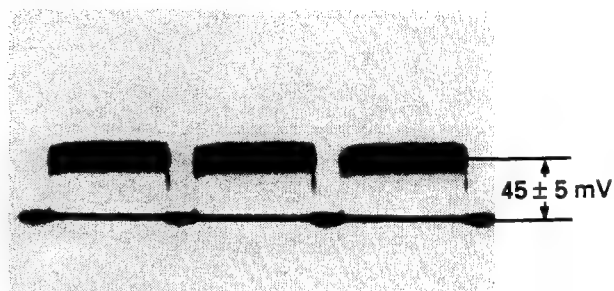
2. Make sure that the video level at TP5 (GND: E1)/PR-180 board is  $500 \pm 10$  mV.
3. Connect a probe of oscilloscope to TP4 (GND: E1)/PR-180 board.
4. Adjust  $\odot$ RV5/PR-180 board so that the crosspoint level of the video signal is  $880 \pm 10$  mV.



5. Adjust  $\odot$ RV4/PR-180 board so that the white level of grayscale chart is  $1400 \pm 10$  mV.

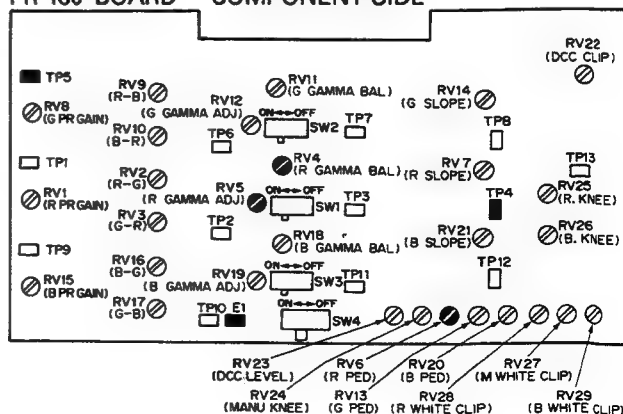


6. Cover the lens with lens cap.
7. Adjust  $\odot$ RV6/PR-180 board so that the pedestal level is  $45 \pm 5$  mV.



8. Remove the lens cap.
9. Repeat procedure 4 through procedure 8 several times.
10. Do not adjust the iris control until the Item 3-5-15. are completed.

PR-180 BOARD —COMPONENT SIDE—

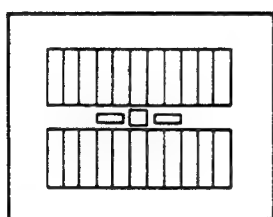


### 3-5-15. B ch Gamma Balance Adjustment

**Note:** The Item 3-5-13. must be done before this adjustment.

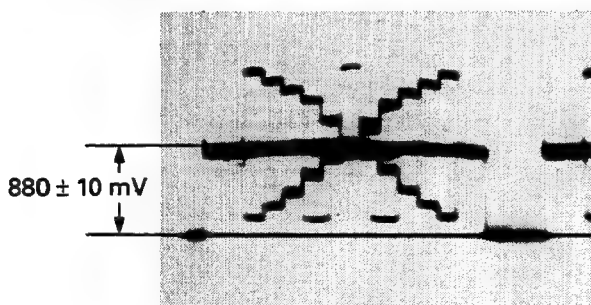
Object : Grayscale chart  
 Equipment : Oscilloscope  
 To be extended : VA-138 board  
 Trigger : pin A5/extension board  
 Adjustment :

1. Adjust the zoom control so that the Grayscale chart frame matches the underscanned picture frame on the screen.

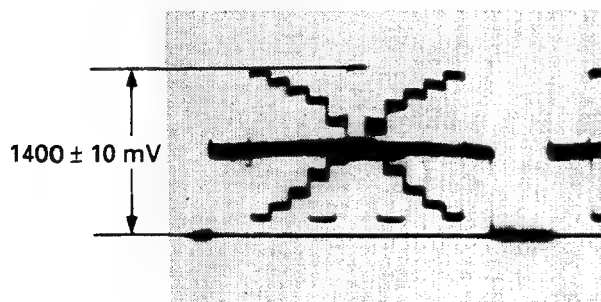


Monitor Screen

2. Make sure that the video level at TP5 (GND: E1)/PR-180 board is  $500 \pm 10$  mV.
3. Connect a probe of oscilloscope to TP12 (GND: E1)/PR-180 board.
4. Adjust  $\odot$ RV19/PR-180 board so that the cross point level of the video signal is  $880 \pm 10$  mV.

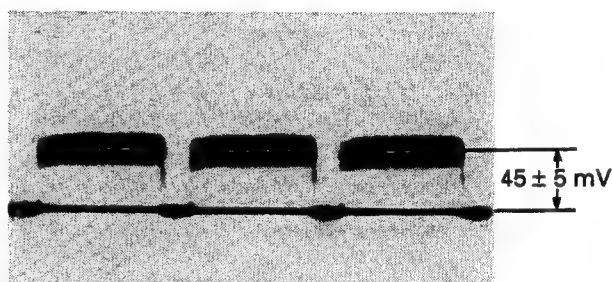


5. Adjust  $\odot$ RV18/PR-180 board so that the white level of grayscale chart is  $1400 \pm 10$  mV.



6. Cover the lens with lens cap.

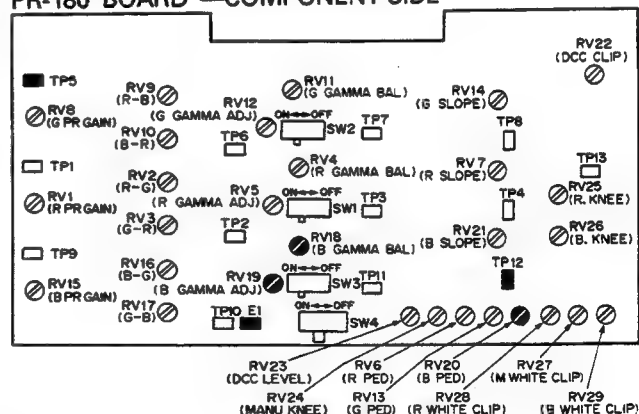
7. Adjust  $\odot$ RV20/PR-180 board so that the pedestal level is  $45 \pm 5$  mV.



8. Remove the lens cap.

9. Repeat procedure 4 through procedure 8 several times.

#### PR-180 BOARD —COMPONENT SIDE—

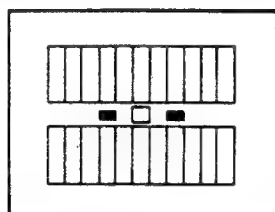


**Note:** After adjustment is completed, perform the Item 3-5-17. R/B-ch Gamma Balance Adjustment.

### 3-5-16. Flare Adjustment

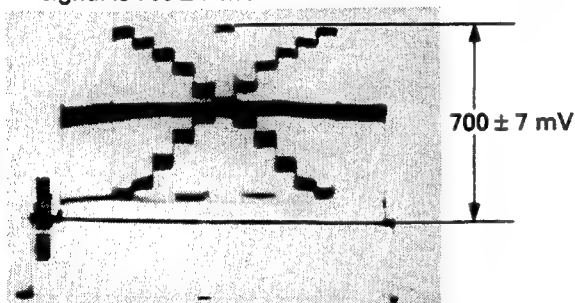
Object : Grayscale chart  
 Equipment : Waveform monitor  
 To be extended : VA-138 board  
 Adjustment :

1. Adjust the zoom control of the lens so that the chart frame matches the underscanned picture frame on the screen.

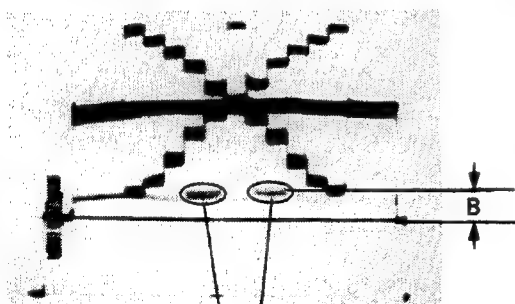


Monitor Screen

2. Adjust the iris control so that the white level of video signal is  $700 \pm 7$  mV.

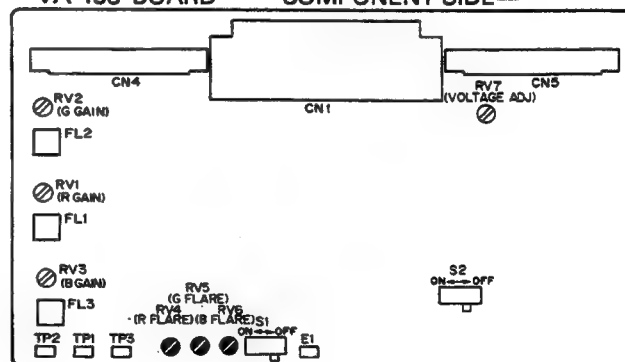


3. Adjust RV4, RV5, and RV6/VA-138 board so that the level "B" is maximum and the carrier leakage is minimum at the same time.



Carrier leakage is minimized.

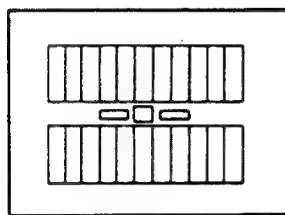
#### VA-138 BOARD —COMPONENT SIDE—



### 3-5-17. R/B ch Gamma Set and Preset Adjustments

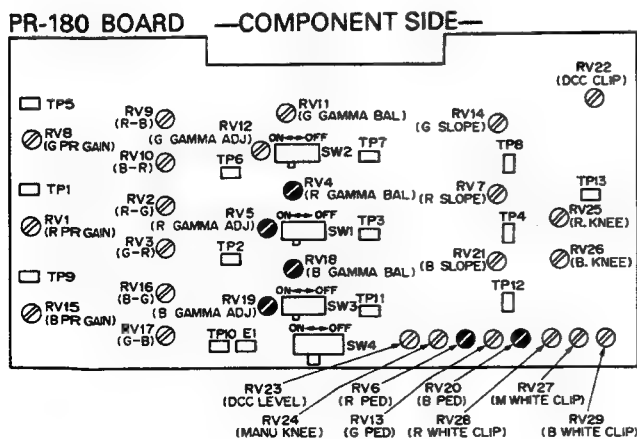
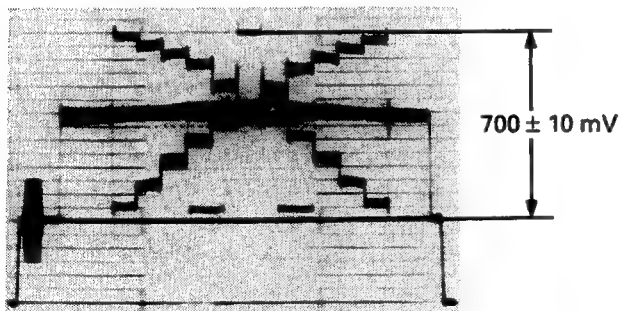
Object : Grayscale chart  
 Equipment : Waveform monitor, Vectorscope  
 (MAX GAIN)  
 To be extended : VA-138 board  
 Adjustment :

1. Adjust the zoom control so that the Grayscale chart frame matches the underscanned picture frame on the screen.

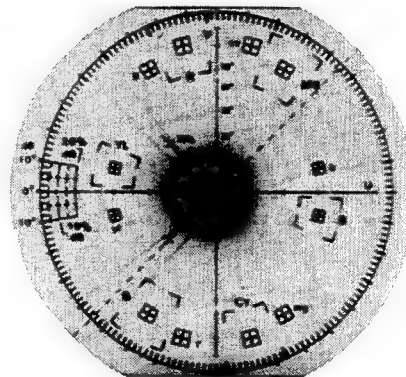


Monitor Screen

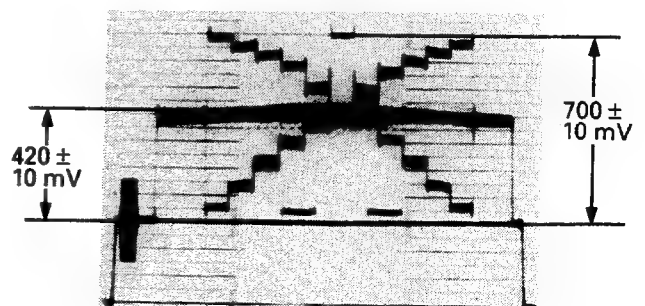
2. Adjust the iris control so that video level is  $700 \pm 10$  mV on the waveform monitor.



3. RV5/PR-180 board  
 RV19/PR-180 board  
 Alternately adjust the above two controls several times so that the beam spot is in the center of vectorscope.
4. RV4/PR-180 board  
 RV18/PR-180 board  
 Alternately adjust the above two controls several times so that the beam spot is in the center of vectorscope.



5. Cover the lens with lens cap.
6. Alternately adjust RV6 and RV20 on the PR-180 board several times so that beam spot is in the center of vectorscope.
7. Remove the lens cap.
8. Repeat procedure 3 through procedure 7 several times.
9. After the adjustment, the following specifications must be met.  
 If not, perform from Item 3-5-2. G ch Video Level Adjustment once more.





### 3-5-18. KNEE Adjustment

#### Note:

The following items must be done before this Adjustment:

- Item 3-5-13. G ch Gamma Balance and Gamma Set Adjustment
- Item 3-5-14. R ch Gamma Balance Adjustment
- Item 3-5-15. B ch Gamma Balance Adjustment
- Item 3-5-17. R/B ch Gamma Set and Preset Adjustment

Object : Grayscale chart

Equipment : Waveform monitor

To be extended : VA-138 board

Preparation :

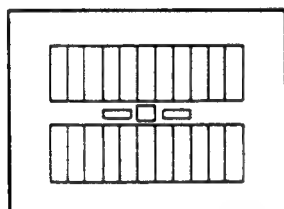
- Set the GAIN switch on the side of the camera to MID (9 dB).

- ⦿RV7, 14, 21/PR-180 board → Fully clockwise ⦿

Trigger : pin A5/extension board

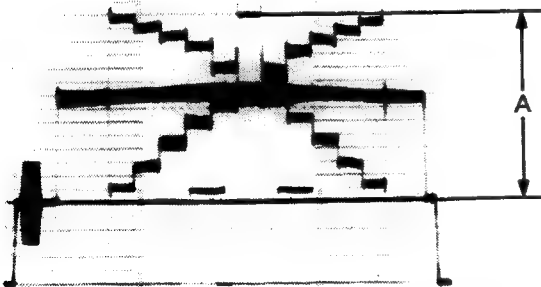
#### Adjustment procedures :

1. Adjust the zoom control of the lens so that the chart frame matches the underscanned picture frame on the screen.



Monitor Screen

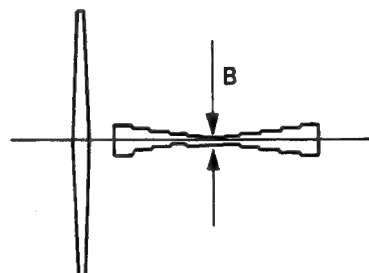
2. Adjust the iris control so that the video level "A" at VIDEO OUT connector (camera side panel) is  $700 \pm 7$  mV.



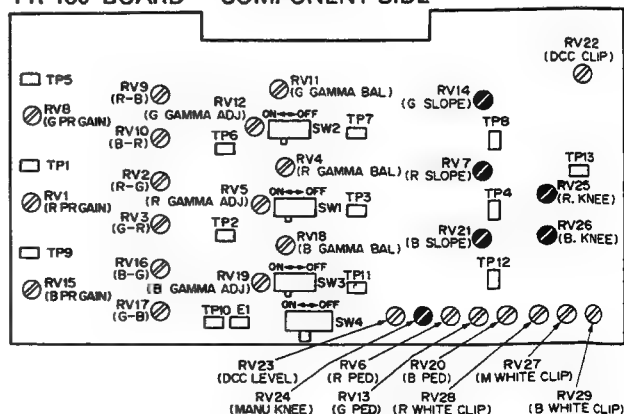
3. ⦿RV 7, 14, 21/PR-180 → Fully clockwise ⦿
4. Turn ⦿RV24/PR-180 counterclockwise slowly from fully clockwise and stop where the level "A" at VIDEO OUT connector becomes  $728 \pm 7$  mV.
5. Adjust ⦿RV25, 26/PR-180 several times so that the carrier leakage of center in the waveform is minimized.

6. Turn ⦿RV14/PR-180 counterclockwise slowly and stop where the level "A" at VIDEO OUT connector becomes  $784 \pm 7$  mV.

7. Adjust ⦿RV7, 21/PR-180 so that the carrier leakage "B" is minimized.



#### PR-180 BOARD —COMPONENT SIDE—



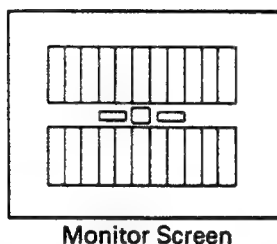
### 3-5-19. DCC Adjustment

Object : Grayscale chart  
 Equipment : Waveform monitor  
 To be extended : VA-138 board  
 Preparation :

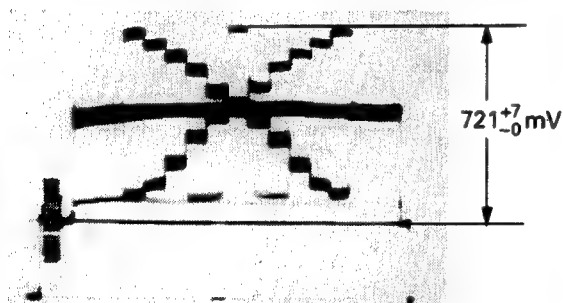
- OUTPUT switch (camera side panel) → CAM (DCC ON)

Adjustment :

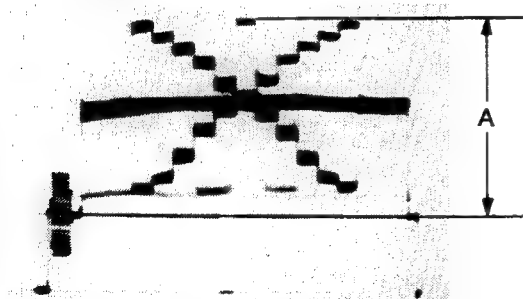
1. Adjust the zoom control so that the Grayscale chart frame matches the underscanned picture frame on the screen.



2. Adjust the iris control so that the video level at VIDEO OUT connector (camera side panel) is  $721^{+7}_{-0}$  mV.

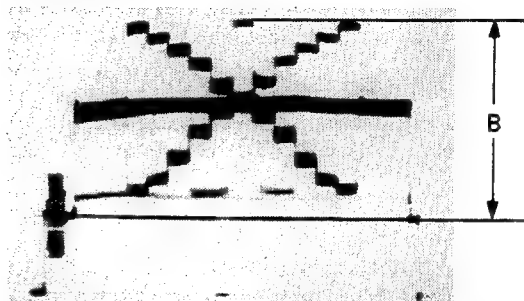


3. Adjust RV23/PR-180 board so that the level "A" is  $707^{+7}_{-0}$  mV.

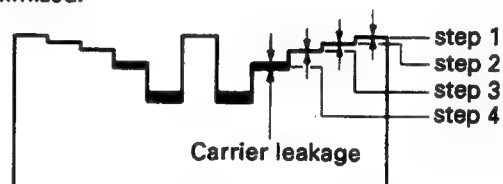


4. Set the GAIN switch on the side of camera to MID (9 dB).

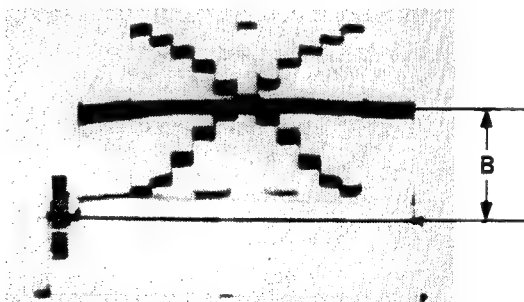
5. Adjust RV22/PR-180 board so that the level "B" is  $630 \pm 7$  mV.



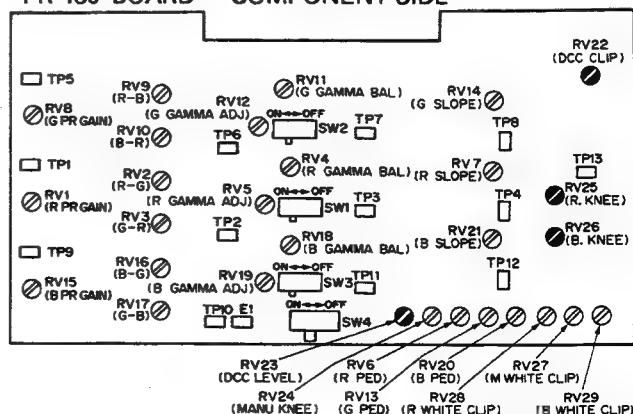
6. Alternately readjust RV25 and RV26/PR-180 board so that the carrier leakage level of step 2 and 3 is minimized.



7. Set the GAIN switch on the side of camera to low (0 dB).
8. Set the OUTPUT switch on the side of camera to DCC OFF.
9. Adjust the iris control so that the cross point level "B" is  $700 \pm 7$  mV.
10. Set the OUTPUT switch on the side of camera to DCC ON. And make sure that the cross point level "B" is  $651 \pm 7$  mV.



PR-180 BOARD — COMPONENT SIDE —



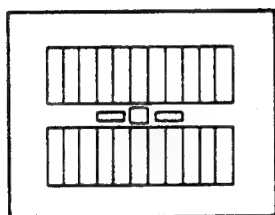
### 3-5-20. White Clip Adjustment

Object : Grayscale chart  
 Equipment : Waveform monitor  
 To be extended : VA-138 board  
 Preparation :

- Set the OUTPUT switch on the side of the camera to CAM.
- Set the GAIN switch on the side of the camera to 18 dB.

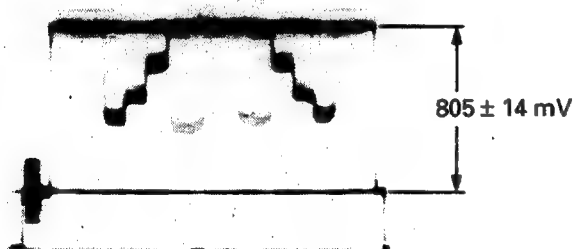
Adjustment :

1. Adjust the zoom control so that the Grayscale chart frame matches the underscanned picture frame on the screen.



Monitor Screen

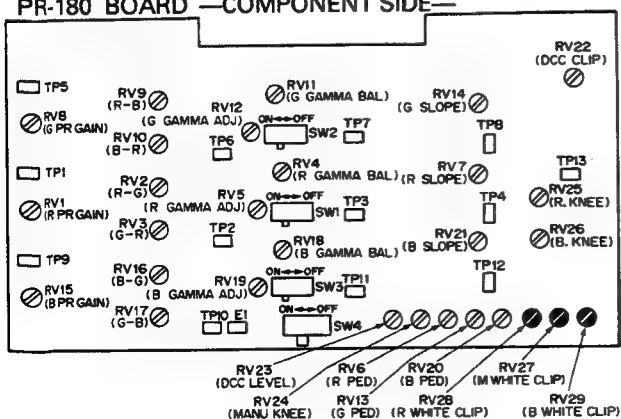
2. Adjust RV27/PR-180 board so that the white peak level is  $805 \pm 14$  mV on the waveform monitor.



3. Open the lens iris fully.
4. Adjust RV28, RV29/PR-180 board several times so that the carrier leakage of the white peak level is minimized.
5. Repeat the steps 3 and 4 several times.

Note: After adjustment is completed, set the GAIN switch on the side of the camera to 0 dB.

PR-180 BOARD —COMPONENT SIDE—

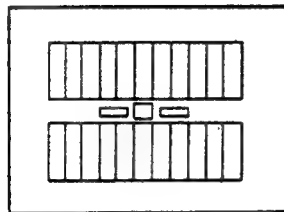


### 3-6. IMAGE ENHANCER SYSTEM ADJUSTMENT (IE-40 board)

#### 3-6-1. HF Offset Adjustment

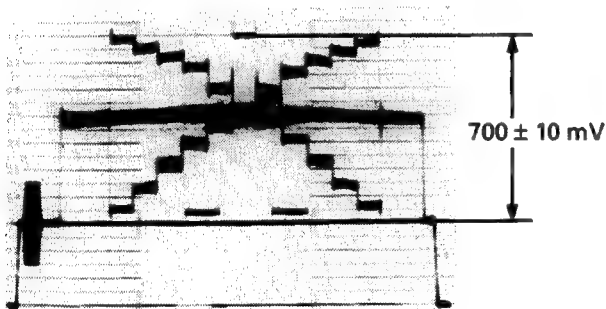
Object : Grayscale chart  
Equipment : Oscilloscope, Waveform monitor  
To be extended : VA-138 board  
Trigger : pin A5/extension board  
Adjustment :

1. Adjust the zoom control of the lens so that the chart frame matches the underscanned picture frame on the screen.

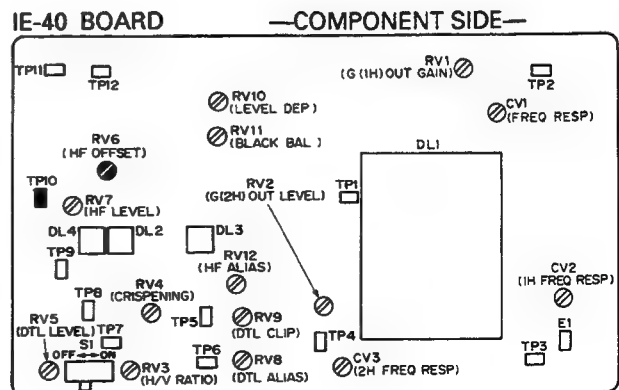
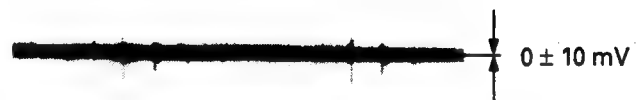


Monitor Screen

2. Adjust the iris control so that the video level at VIDEO OUT connector (camera side panel) is  $700 \pm 10$  mV.



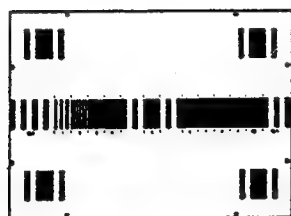
3. Adjust RV6/IE-40 board so that the DC offset level at TP10/IE-40 board (GND: pin A1/extension board) is  $0 \pm 10$  mV.



### 3-6-2. Aperture Adjustment

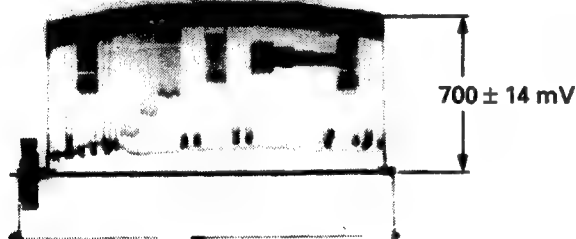
Object : Burst chart  
 Equipment : Waveform monitor  
 To be extended : VA-138 board  
 Preparation : DTL switch (S1)/IE-40 → OFF  
 Adjustment :

1. Adjust the zoom control of the lens so that the chart frame matches the underscanned picture frame the screen.



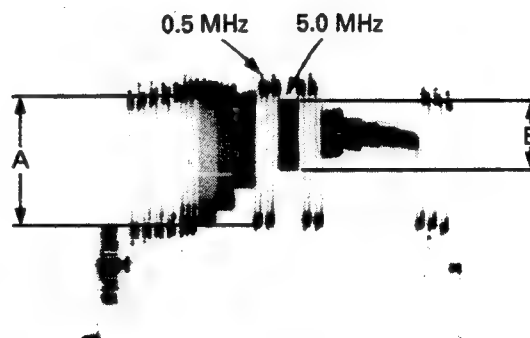
Monitor Screen

2. Adjust the iris control so that the video level at VIDEO OUT connector (camera side panel) is  $700 \pm 14$  mV.

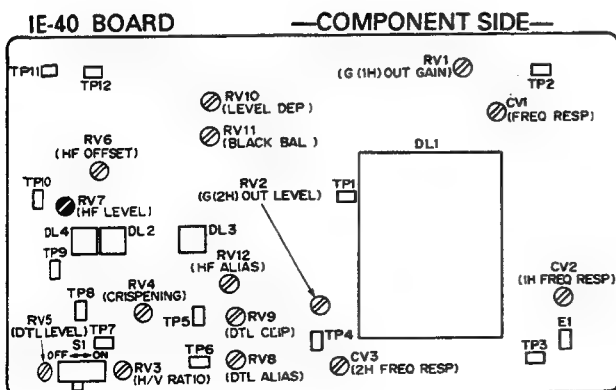


3. Adjust RV7/IE-40 board so that the ratio of 5 MHz level "B" at VIDEO OUT connector (camera side panel) to 0.5 MHz level "A" is  $85 \pm 5\%$ .

(To get the following picture, set the LINE SEL switch on the waveform monitor to "15 LINES".)  
 And adjust the VAR control of LINE SEL.



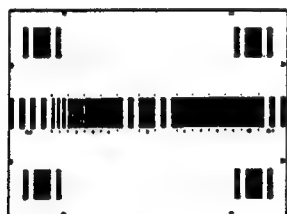
$$B = A \times (85 \pm 5\%)$$



### 3-6-3. CRISPENING Adjustment

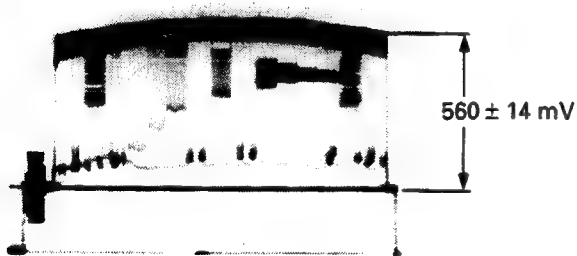
**Note:** Perform the adjustment only when replacing a  $\odot$ RV4 potentiometer on the IE-40 board.

- Object : Burst chart  
 Equipment : Oscilloscope, Waveform monitor  
 To be extended : VA-138 board  
 Test point : TP11/IE-40 board  
 (GND: pin A1/extension board)  
 Trigger : pin A5/extension board  
 Preparation :  
 • Set the GAIN switch on the side of the camera to 0 dB.  
 Adjustment point :  $\odot$ RV4/IE-40 board  
 Adjustment :  
 1. Adjust the zoom control of the lens so that the chart frame matches the underscanned picture frame on the screen.

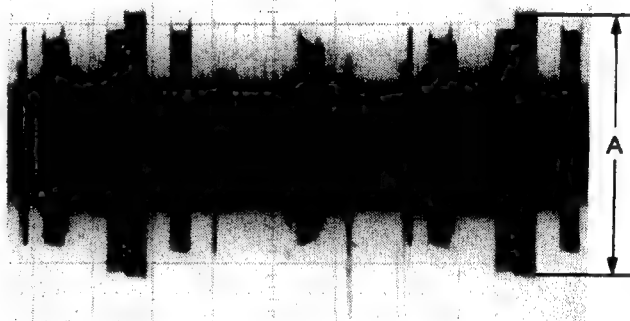


Monitor Screen

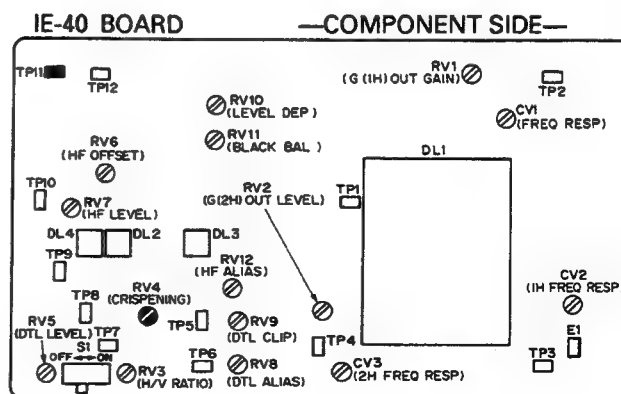
2. Adjust the iris control so that the video level at VIDEO OUT connector (camera side panel) is  $560 \pm 14$  mV.



3.  $\odot$ RV4/IE-40 board  $\rightarrow$  Fully counterclockwise  $\odot$   
 4. Adjust the video level "A" at TP11/IE-40 board (GND: Pin 1A/extension board) with the VAR knob of the oscilloscope so that it is 6 cm on the scale of the oscilloscope display.



5. Adjust  $\odot$ RV4/IE-40 board so that the video level at TP11/IE-40 board (GND: Pin A1/extension board) is  $5.75 \pm 0.2$  cm on the scale of the oscilloscope display.



### 3-6-4. H.V.RATIO Adjustment

Object : Grayscale chart

Equipment : B/W monitor, waveform monitor

To be extended : VA-138 board

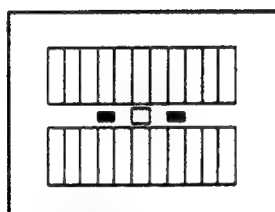
Preparation :

- Set the S1 (DTL) switch on the IE-40 board to ON.
- Set the WHITE BAL switch on the side of the camera to PRESET.

Adjustment point :  $\odot$ RV3/IE-40 board

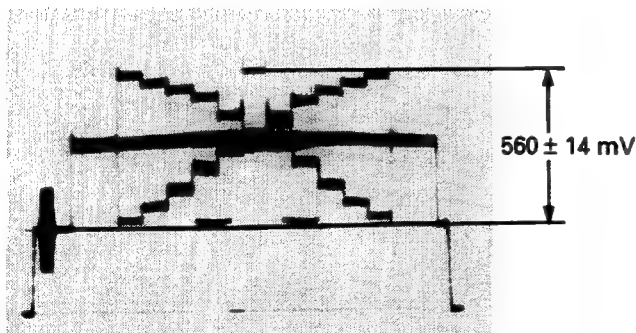
Adjustment :

1. Adjust the zoom control so that the Grayscale chart frame matches the underscanned picture frame on the screen.

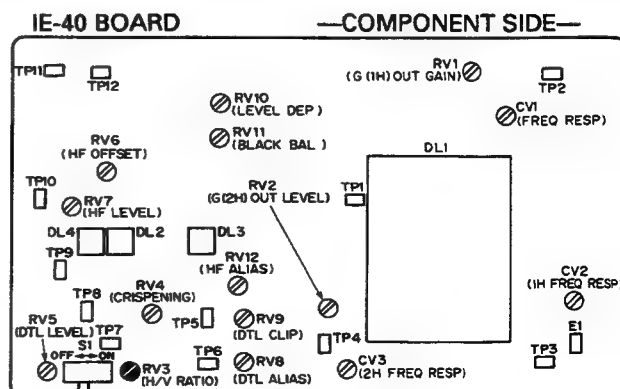
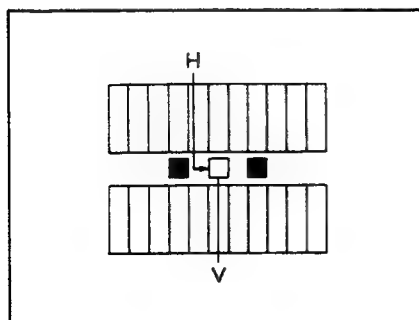


Monitor Screen

2. Adjust the iris control so that the video level is  $560 \pm 14$  mV on the waveform monitor.



3. Observing the point indicated on the B/W monitor (See the figure below.), adjust  $\odot$ RV3/IE-40 board so that the ratio of H to V of DTL is 3 to 2.



### 3-6-5. Detail Level Adjustment

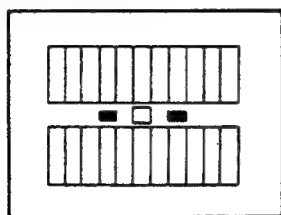
Object : Grayscale chart  
 Equipment : Waveform monitor  
 To be extended : VA-138 board  
 Preparation :

- WHITE BAL switch (camera side panel) → PRESET
- DTL switch (S1)/IE-40 → ON

Adjustment point : ⓪RV5/IE-40 board

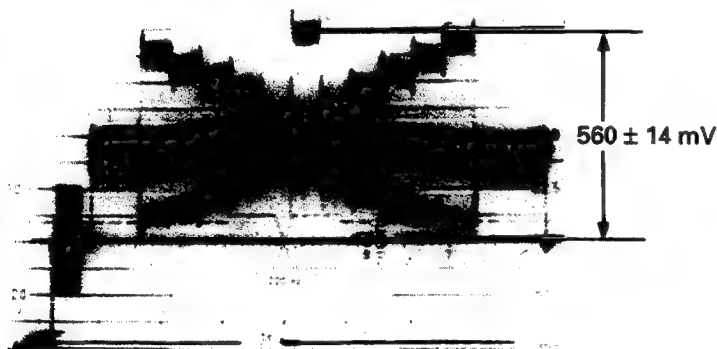
Adjustment :

1. Adjust the zoom control so that the grayscale chart frame touches the underscanned picture frame on the monitor.



Monitor Screen

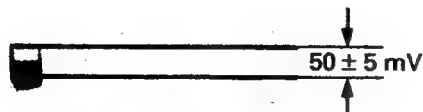
2. Adjust the iris control so that the white level of the grayscale chart is  $560 \pm 14$  mV.



3. Adjust "LINE SELECTOR (15 LINE)" of the waveform monitor so that a selected line is overlapped with white level of the grayscale chart on the waveform monitor.

Adjust ⓪RV 5/IE-40 board so that the DTL level is  $50 \pm 5$  mV.

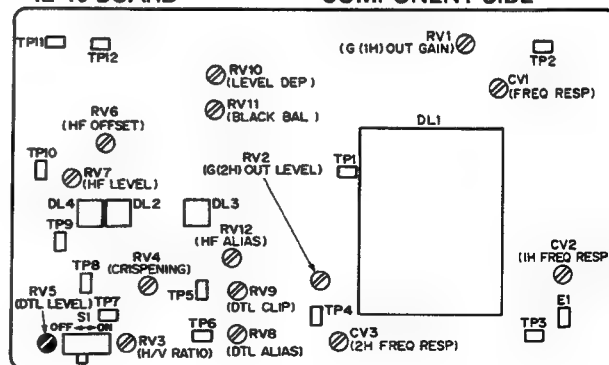
Note: If the two DTL level are not balanced, take the bigger one.



4. Repeat the 3-6-4. H.V.RATIO Adjustment to the 3-6-5. Detail Level Adjustment several times.
5. After the adjustment, set the DTL switch (S1)/IE-40 to OFF.

IE-40 BOARD

—COMPONENT SIDE—





### 3-7 AUTO SYSTEM (AT-78 board)

**Note:** Be sure to set the S11 (ADJ)/AT-78 board to ON then OFF, before performing the adjustment of auto system.

#### 3-7-1. LOW LIGHT Adjustment

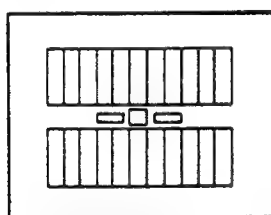
Object : Grayscale chart  
Equipment : Waveform monitor  
Preparation :

- Set the WHITE BAL switch on the side of the camera to PRESET.
- Press the DISP CHG button several times until the following (see illustration below) display appears on the viewfinder screen.

BATT	: 12.0 V
WHITE	: PRESET
BLACK	: AUTO
IRIS	: STD
GAIN	: -3dB
DCC	: ON
MATRIX	: STD
SHUTTER	: 1/100
→ L. L. IND	: ON
→ TONE SET	: ON

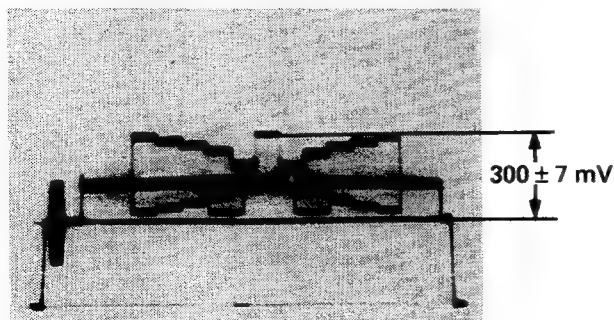
Adjustment point : ●RV5/AT-78 board  
Adjustment :

1. Adjust the zoom control so that Grayscale chart frame matches the underscanned picture frame on the screen.

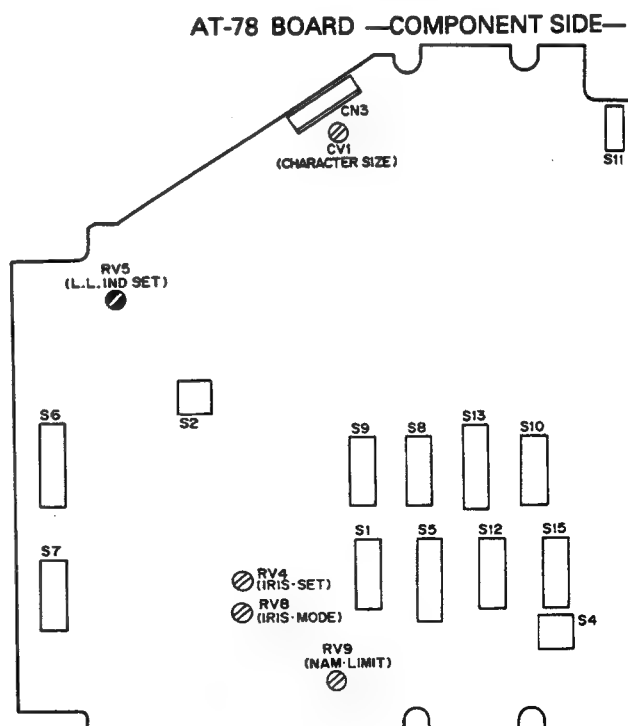


Monitor Screen

2. Adjust the lens iris control so that the white level of the video signal is  $300 \pm 7$  mV.



3. Rotate ●RV5/AT-78 board slowly counterclockwise from the rightmost position until the point where the "LOW LIGHT" indication on the viewfinder screen.
4. Open the iris control gradually and confirm that the white level of the video signal is  $275 \pm 35$  mV when the "LOW LIGHT" indication disappears. If the specification is not met, repeat procedure 3.



### 3-7-2. Auto Iris Adjustment

Object : Grayscale chart, Pattern box (white)

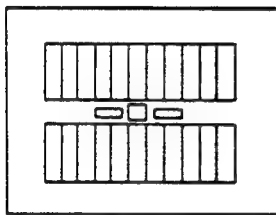
Equipment : Waveform monitor

Preparation :

- Set the WHITE BAL switch on the side of the camera to PRESET.
- S6 (A. IRIS MODE)/AT-78 board → STD
- Set the iris control to AUTO
- Rotate RV8 (IRIS MODE)/AT-78 board fully clockwise

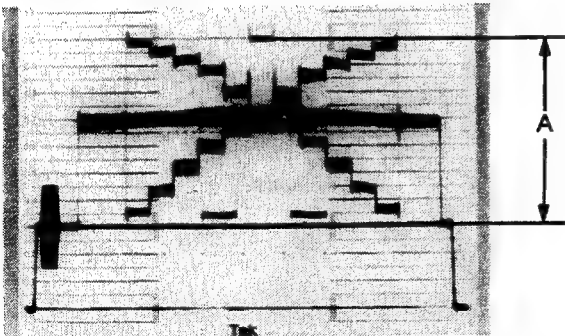
Adjustment :

1. Adjust the zoom control so that the Grayscale chart frame matches the underscanned picture frame on the screen.

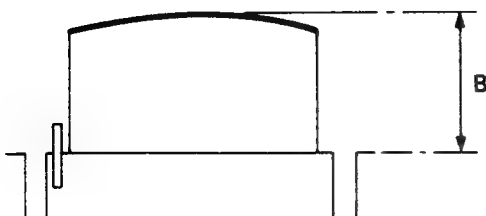


Monitor Screen

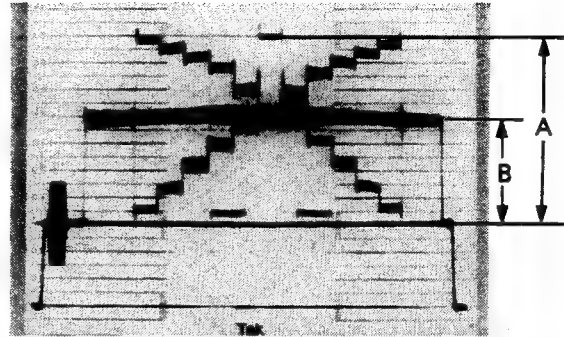
2. Adjust RV5 (IRIS SET)/AT-78 board so that the white peak level "A" is  $610 \pm 7$  mV.
3. Adjust RV8 (IRIS MODE)/AT-78 board so that the white peak level "A" is  $685 \pm 7$  mV.



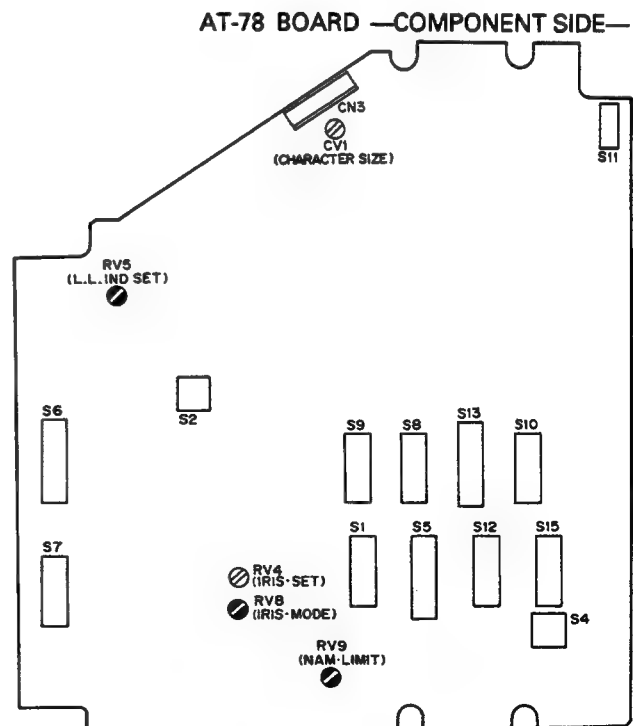
4. Remove the grayscale from the pattern box, and image the white of the pattern box with the lens zoom set fully to TELE.
5. Make sure that the white peak level "B" is  $560 \pm 20$  mV.



6. Set the A. IRIS MODE switch (S6)/AT-78 board to BACK L.
7. Adjust RV9/AT-78 board so that the cross point level "B" is  $600 \pm 7$  mV.



8. Check that the peak level "A" in the figure above is  $600 \pm 35$  mV when the A. IRIS MODE switch (S6)/AT-78 board is set to SPOT L.
9. After adjusting, return the following switch to its original setting
  - A. IRIS MODE switch (S6)/AT-78 board → STD
  - Iris control → MANUAL



### 3-7-3. Character Size Adjustment

Test point : Viewfinder screen

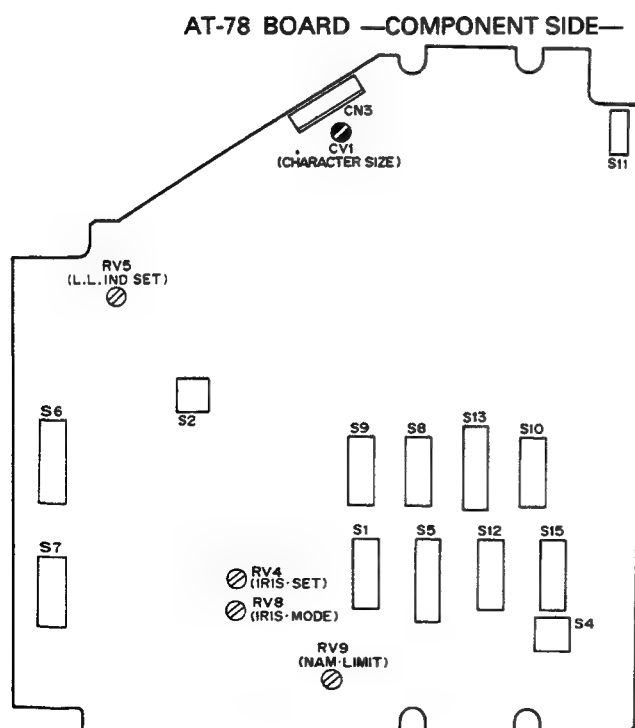
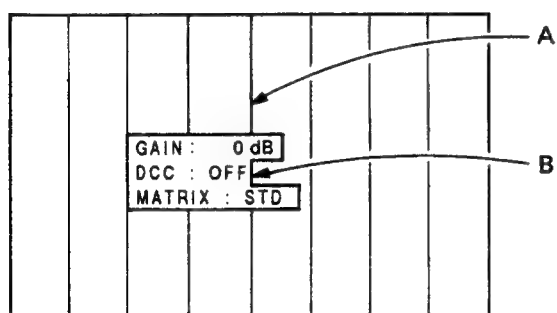
Preparation :

- OUTPUT switch (camera side panel) → BARS
- DISP CHG switch (camera side panel) → ON

Adjustment point : ●CV1/AT-78 board

Adjustment :

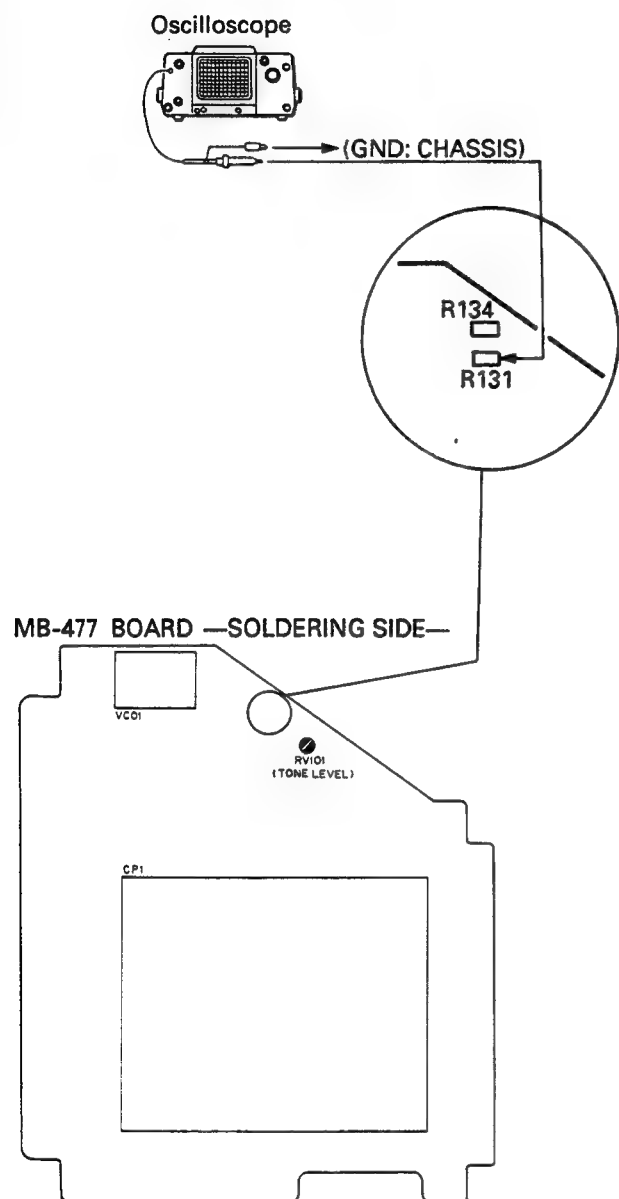
Adjust ●CV1/AT-78 board so that the "B" line on white block for character display matches the "A" line on color bar screen.



## 3-8. AUDIO SYSTEM

### 3-8-1. Tone Level Adjustment

Connection:



Equipment  
Preparation

- : Oscilloscope
- : OUTPUT switch/camera side panel  
→ BARS
- Press the DISP CHG button several times until the following (see illustration below) display appears on the viewfinder screen.  
(TONE SET OFF → ON)

BATT	: 12.0 V
WHITE	: PRESET
BLACK	: AUTO
IRIS	: STD
GAIN	: -3dB
DCC	: ON
MATRIX	: STD
SHUTTER	: 1/100
→ L. L. IND	: ON
TONE SET	: ON

Adjustment point : ●RV101/MB-477 board  
Specification :  $A = 600 \pm 15 \text{ mV}$

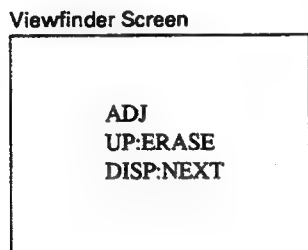


Note: After adjustment is completed, TONE SET is OFF.

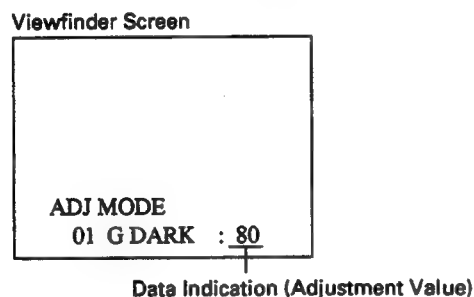
### 3-9. Adjustment when replacing the CCD BLOCK/VA-138 board

#### 3-9-1. ADJ Mode Description

1. S11(ADJ)/AT-78 board is ON until the following (see illustration below) display appears on the viewfinder screen.



2. Press the DISP CHG button (camera side panel) until the following (See illustration below) display on the viewfinder screen.



The ADJ mode can be changed from 01h to 15h by pressing the DISP CHG button (camera side panel) repeatedly.

#### [ADJ MODE]

01 G DARK	0C B H SAW
02 G BLACK1	0D G V SAW
03 R DARK	0E R V SAW
04 R BLACK1	0F B V SAW
05 B DARK	10 G VA GAIN
06 B BLACK1	11 R VA GAIN
07 G SHAD BAL	12 B VA GAIN
08 R SHAD BAL	13 M PRE KNEE
09 B SHAD BAL	14 R PRE KNEE
0A G H SAW	15 B PRE KNEE
0B R H SAW	

#### <On data indication (adjustment value)>

The data indication (adjustment value) is changed from "00" to "FF" by pressing the UP or DOWN button (camera front panel).

(The adjustment value changes in the same manner as the signal level which is changed when the general VR is turned.)

UP/DOWN buttons	Data indication (adjustment value)	Position of general VR
DOWN ↑ ↓ UP	00h	Minimum
	80h	Mechanical center
	FFh	Maximum

#### [Pre-adjustment]

The data indication (adjustment value) "80h" can be set by pressing the UP/DOWN buttons simultaneously.

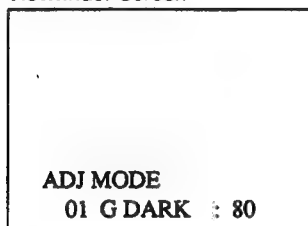
### 3-9-2. Black Set Adjustment

Lens Iris : Close "C"  
 Equipment : Oscilloscope  
 To be extended : VA-138 board  
 Preparation : S11(ADJ)/AT-78 board → ON

Adjustment :

1. Press the DISP CHG button (Camera side panel) until the following (See illustration below) display appears on the viewfinder screen.

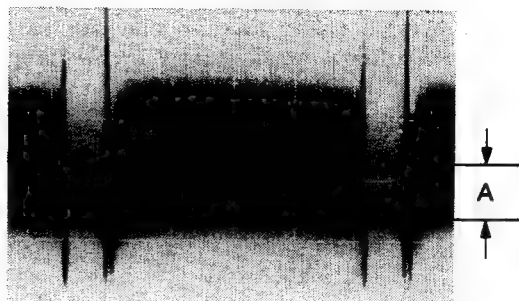
Viewfinder Screen



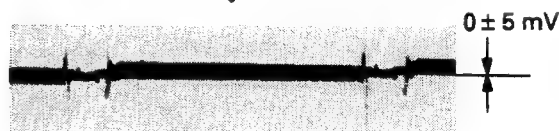
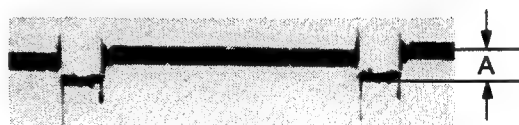
2. In the following setting, adjust in order of G ch, R ch, and B ch.

	Test Point /PR-180	ADJ Mode (Indication)	GAIN SW (Camera side panel)
G	TP7	G DARK	18 dB (High)
		G BLACK1	0 dB (Low)
R	TP3	R DARK	18 dB (High)
		R BLACK1	0 dB (Low)
B	TP11	B DARK	18 dB (High)
		B BLACK1	0 dB (Low)

3. Set the ADJ mode to DARK and adjust so that the waveform level "A" of the oscilloscope is  $0 \pm 5$  mV when the GAIN switch level is 18 dB by pressing the UP/DOWN buttons (camera front panel).



4. Set the ADJ mode to BLACK 1 and adjust so that the waveform level "A" of the oscilloscope becomes  $0 \pm 5$  mV when the GAIN switch level is 0 dB by pressing the UP/DOWN buttons on the (camera front panel).



5. Repeat steps 3 and 4, and check that the level does not fluctuates even though the GAIN switch position is changed from 0 dB to 18 dB vice versa.
6. Adjust R ch and B ch in the same procedure as above.
7. After adjustment, return the GAIN switch position on the side of the camera to 0dB and set the S11(ADJ)/AT-78 board to OFF.

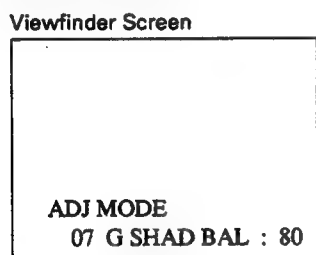
### 3-9-3. Shading Balance Adjustment

Lens Iris : Close "C"  
 Equipment : Oscilloscope  
 Trigger : pin A5/extension board  
 Preparation :

- S11(ADJ)/AT-78 board → ON
- Set the data indication (adjustment value) on the viewfinder screen in the ADJ mode to "FFh".

Adjustment :

1. Press the DISP CHG button (camera side panel) until the following (see illustration bellow) display appears on the viewfinder screen.



2. While pressing the UP/DOWN buttons on (camera front panel), adjust so that the waveform of the oscilloscope becomes flat in order of G ch, R ch, and B ch.

	Test Point	ADJ MODE/ (Indication)	Spec.
G	TP12 /IE-40	G SHAD BAL	
R	TP1 /PR-180	R SHAD BAL	
B	TP9 /PR-180	B SHAD BAL	

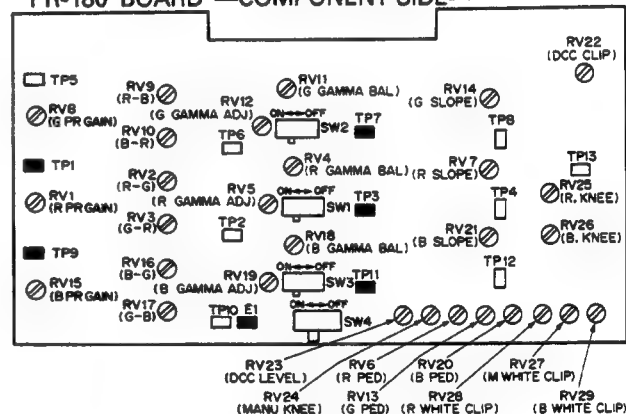
3. After adjustment, set the data indication (adjustment value) on the viewfinder screen in the ADJ mode from "FFh" to "80h".

( G H SAW : 80  
 R H SAW : 80  
 B H SAW : 80

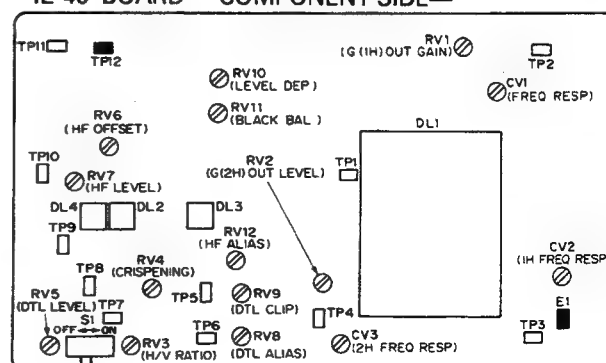
(The data indication can be set to "80h" by pressing the UP/DOWN buttons (camera front panel) simultaneously.)

**Note:** After adjustment is completed, perform the item 3-9-4. While Shading Adjustment.

PR-180 BOARD —COMPONENT SIDE—



IE-40 BOARD —COMPONENT SIDE—



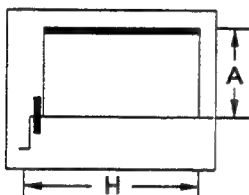
### 3-9-4. White Shading Adjustment

**Note:** The item 3-9-3. must be done before this adjustment.

Object : White portion of pattern box  
 Equipment : Oscilloscope, Waveform monitor  
 To be extended : VA-138 board  
 Preparation : S11(ADJ)/AT-78 board → ON

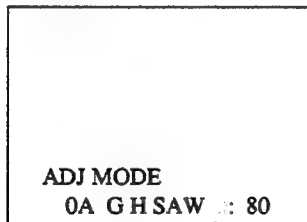
- Adjustment :
1. Shoot the center portion of the pattern box by zooming the lens to fully telephoto position.
  2. Adjust the iris control so that the level "A" is  $490 \pm 14\text{mV}$ .

Waveform monitor



3. Press the DISP CHG button (Camera side panel) until the following (see illustration below) display appears on the viewfinder screen.

Viewfinder Screen



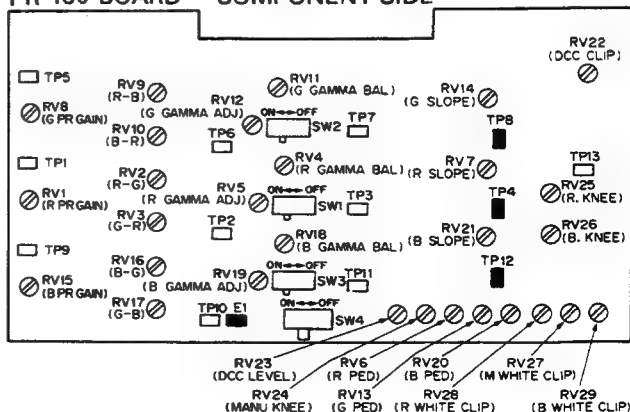
4. In the following ADJ mode, adjust so that the waveform of the oscilloscope becomes flat by pressing the UP/DOWN buttons (camera front panel).

- ① Connect CH-1 of oscilloscope to TP8(G)/PR-180 board, and adjust so that the waveform becomes flat.
- ② Connect CH-1 of oscilloscope to TP8(G)/PR-180 board and connect CH-2 of oscilloscope to TP4 (R)/PR-180 board. Set the oscilloscope to ADD mode and CH-2 INVERT mode. Adjust so that the waveform becomes flat.
- ③ Connect CH-1 of oscilloscope to TP8(G)/PR-180 board and connect CH-2 of oscilloscope to TP12(B)/PR-180 board. Set the oscilloscope to ADD mode and CH-2 INVERT mode. Adjust so that the waveform becomes flat mode.

ADJ mode (Indication)		G	H SAW	G	V SAW
Test point /PR-180		R	H SAW	R	V SAW
		B	H SAW	B	V SAW
G	TP8				
R	TP4				
B	TP12				

5. After adjustment, set S11(ADJ)/AT-78 board to OFF.

PR-180 BOARD —COMPONENT SIDE—





### 3-9-5. PRE KNEE Adjustment

Object : Grayscale chart

Equipment : Oscilloscope

To be extended : VA-138 board

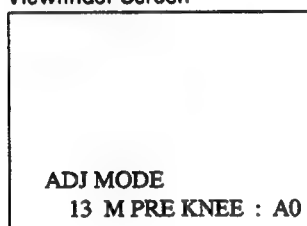
Preparation :

- S11(ADJ)/AT-78 board → ON
- Output switch/camera side panel → CAM (DCC OFF)

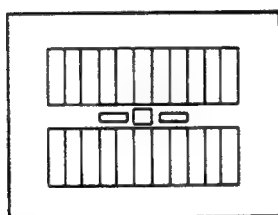
Adjustment :

1. Press the DISP CHG switch (camera side panel) and display the following indication on the viewfinder screen. Press the UP/DOWN buttons (camera front panel) and set the data indication (adjustment value) to "A0h".

Viewfinder Screen

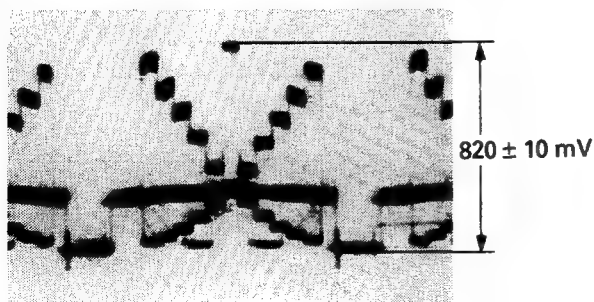


2. Adjust the zoom control so that the Grayscale chart frame matches the underscanned picture frame on the screen.

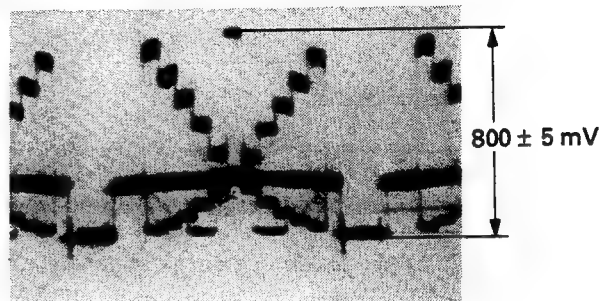


Monitor Screen

3. Adjust the lens iris control so that the white level of the video level is  $820 \pm 10 \text{ mV}$ .

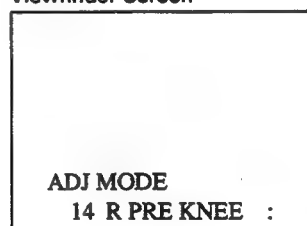


4. Press the UP/DOWN buttons (camera front panel) so that the video level at TP5 (GND:E1)/PR-180 board is  $800 \pm 5 \text{ mV}$ .

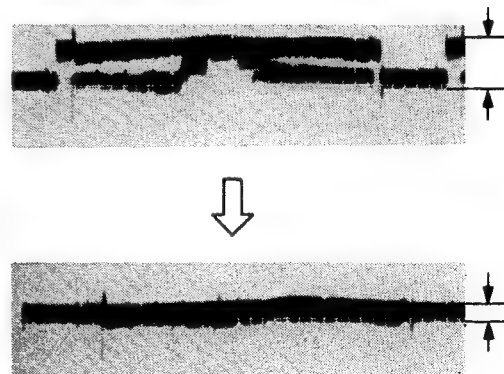


5. GAIN switch (camera side panel) → MID (9dB).
6. Connect the CH-2 of oscilloscope to TP5(GND:E1)/PR-180 board. And set the oscilloscope to ADD mode and CH-2 INVERT mode.
7. Connect the CH-2 of oscilloscope to TP1 (GND:E1)/PR-180 board.
8. Press the DISP CHG switch (camera side panel) once and display "14 R PRE KNEE" of the ADJ mode.

Viewfinder Screen

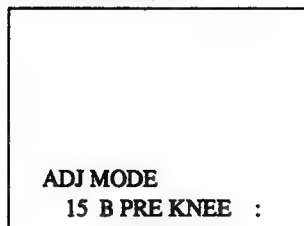


9. Press the UP/DOWN buttons (camera front panel) so that the waveform is flat.

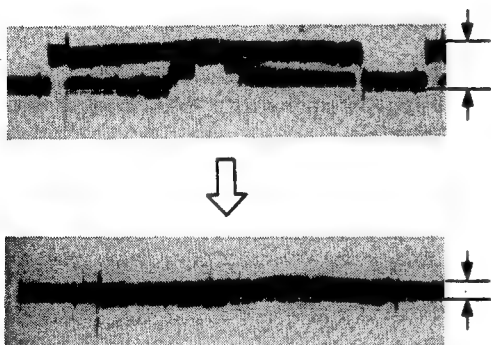


10. Press the DISP CHG switch (camera side panel) once and display "15 B PRE KNEE" of the ADJ mode.

Viewfinder Screen



11. Connect the CH-2 of oscilloscope to TP9(GND:E1)/PR-180 board.  
Press the UP/DOWN buttons (camera front panel) so that the waveform is flat.

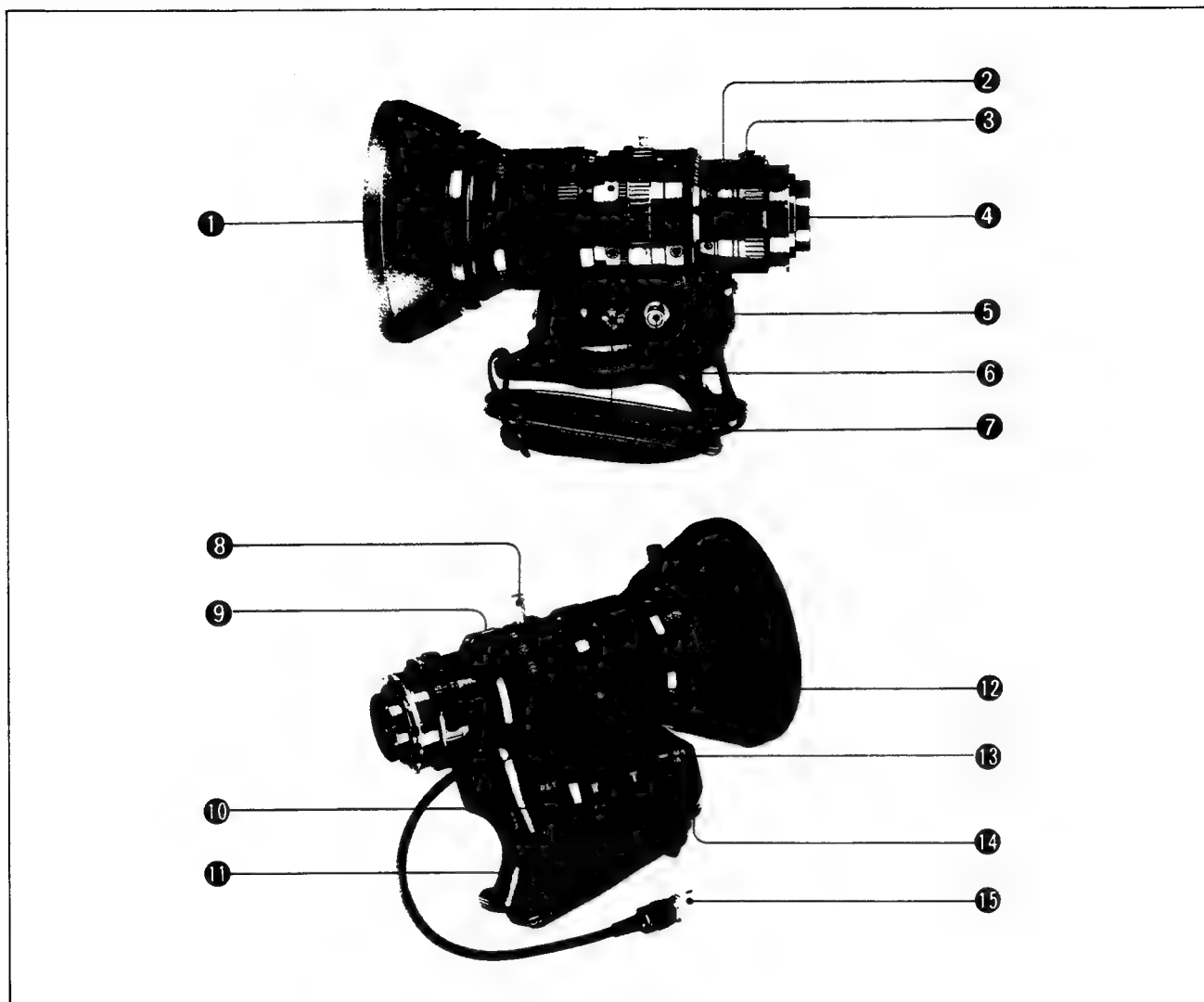


12. After adjustment, set S11(ADJ)/AT-78 board to OFF.

**VCL-916BYA**



The Sony VCL-916BYA is a 16x zoom lens designed for use with a Sony 2/3-inch CCD color video camera.  
Please refer to the camera's instruction manual when using the lens.



### Location and Function of Parts and Controls

**1 Focus ring**

**2 F1 (flange focal length) adjustment ring**

**3 MACRO (close-up) button**

**4 MACRO (close-up) ring**

For close-up, set the focus ring to the 0.9 position, and while sliding the MACRO button, turn this ring fully in the direction of the arrow. Set the ZOOM selector to M and focus with the zoom lever.

**5 Zoom remote control connector (8-pin)**

Connect the optional LO-23 lens remote control unit for remote control of zooming.

**6 Focus remote control connector (3-pin)**

Connect a commercially available device for remote control of focusing.

**7 ZOOM selector**

**8 Zoom lever**

**9 Iris ring**

**10 RET (return video) button**

Keep this button depressed to monitor the E-E picture from the connected VTR on the viewfinder. Release the button to monitor the camera picture.

When a camera control unit is connected, keep this button depressed to monitor the return video, and release the button to monitor the camera picture.

**11 VTR button**

Press this button to start and stop recording.

When a camera control unit is connected, keep this button depressed to monitor the return video, and release the button to monitor the camera picture.

**12 Motorized zoom switch**

**13 IRIS selector**

**14 Instant automatic iris adjustment button**

**15 Lens connector (12-pin)**

## Specifications

Focal length	9.0 to 144 mm
Zoom	Manual and motorized, selectable Zooming ratio: 16x
Maximum aperture ratio	1 : 1.8
Iris control	Manual and auto, selectable 1.8 to 16 and C (closed)
Range of object field (at the distance of 0.9 m)	W (wide angle): 815 × 611 mm (32 1/8 × 24 1/8 inches) T (telephoto): 51 × 38 mm (2 1/8 × 1 1/2 inches)
Minimum object distance	0.9 m
Filter thread	77 mm dia. 0.75 pitch
Mount	Bayonet mount
Dimensions	120 × 214.2 mm (dia./length) (4 3/4 × 8 1/2 inches) incl. projecting parts and lens hood
Mass	Approx. 1.2 kg (2 lb 10 oz) without lens hood
Supplied accessory	Operating instructions (1)

Design and specifications are subject to change without notice.

**SONY®**



**V13543**

カラービデオカメラ

COLOR VIDEO CAMERA

**DXC-537A/537AP**

ズームレンズ

ZOOM LENS

**VCL-916BYA**

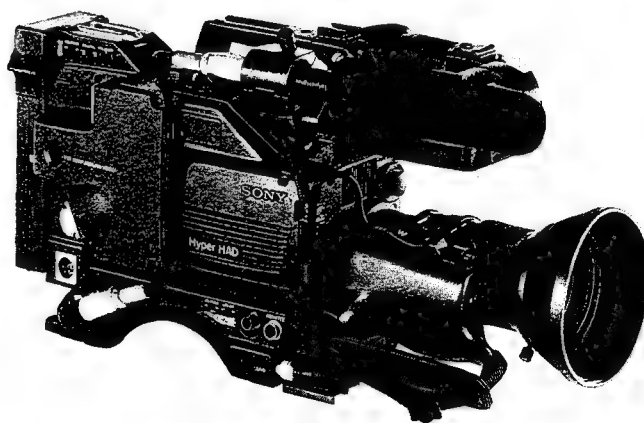
三脚アタッチメント

TRIPOD ATTACHMENT

**VCT-14**


**SERVICE MANUAL**

Vol. 2 (1st Edition)



**Hyper HAD™**

## SAFETY RELATED COMPONENT WARNING

Components identified by shading and  marked on the schematic diagrams and parts list are critical to safe operation. Replace these components with SONY parts whose part numbers appear as shown in this manual or in supplements published by SONY.

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エレクトロニックビューファインダー DXF-501のサービス情報については、別途発行のDXF-501のサービスマニュアル (9-977-201-01) および、補修部品表 (9-977-201-71) をご覧ください。

カメラマイクホルダー CAC-12の補修部品については、別途発行のCAC-12の部品価格表 (9-967-251-71) をご覧ください。

On service information for the DXF-501/501CE electronic viewfinder, please see the DXF-501/501CE service manual (9-977-201-01) available separately.

On service information for the CAC-12 microphone holder, please see the CAC-12 service manual (9-967-252-01) available separately.



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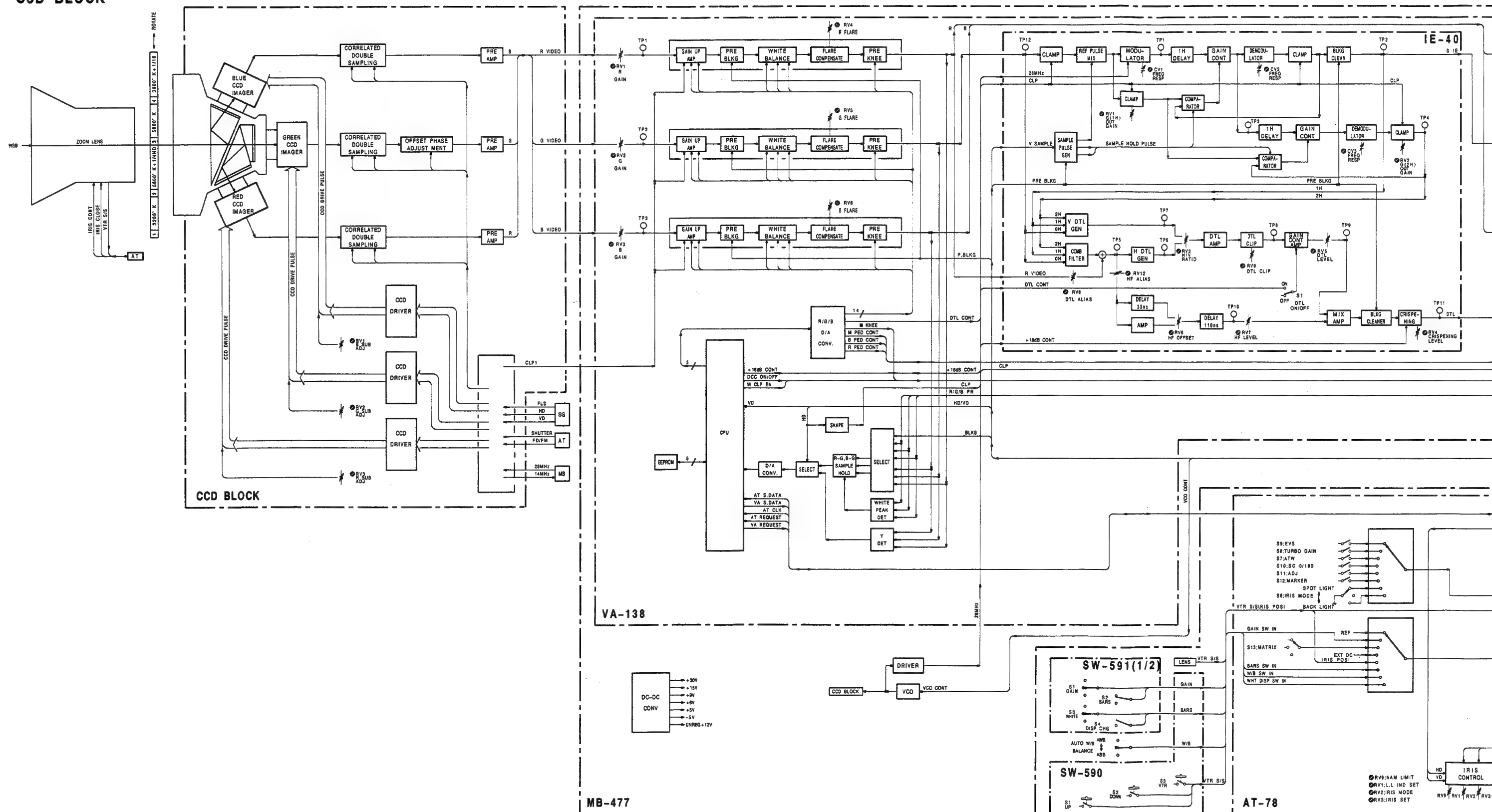
ELECTRICAL PARTS .....	D-12
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**VCL-916BYA**  
**VCT-14**

EXPLODED VIEW

## OVERALL BLOCK

## CCD BLOCK

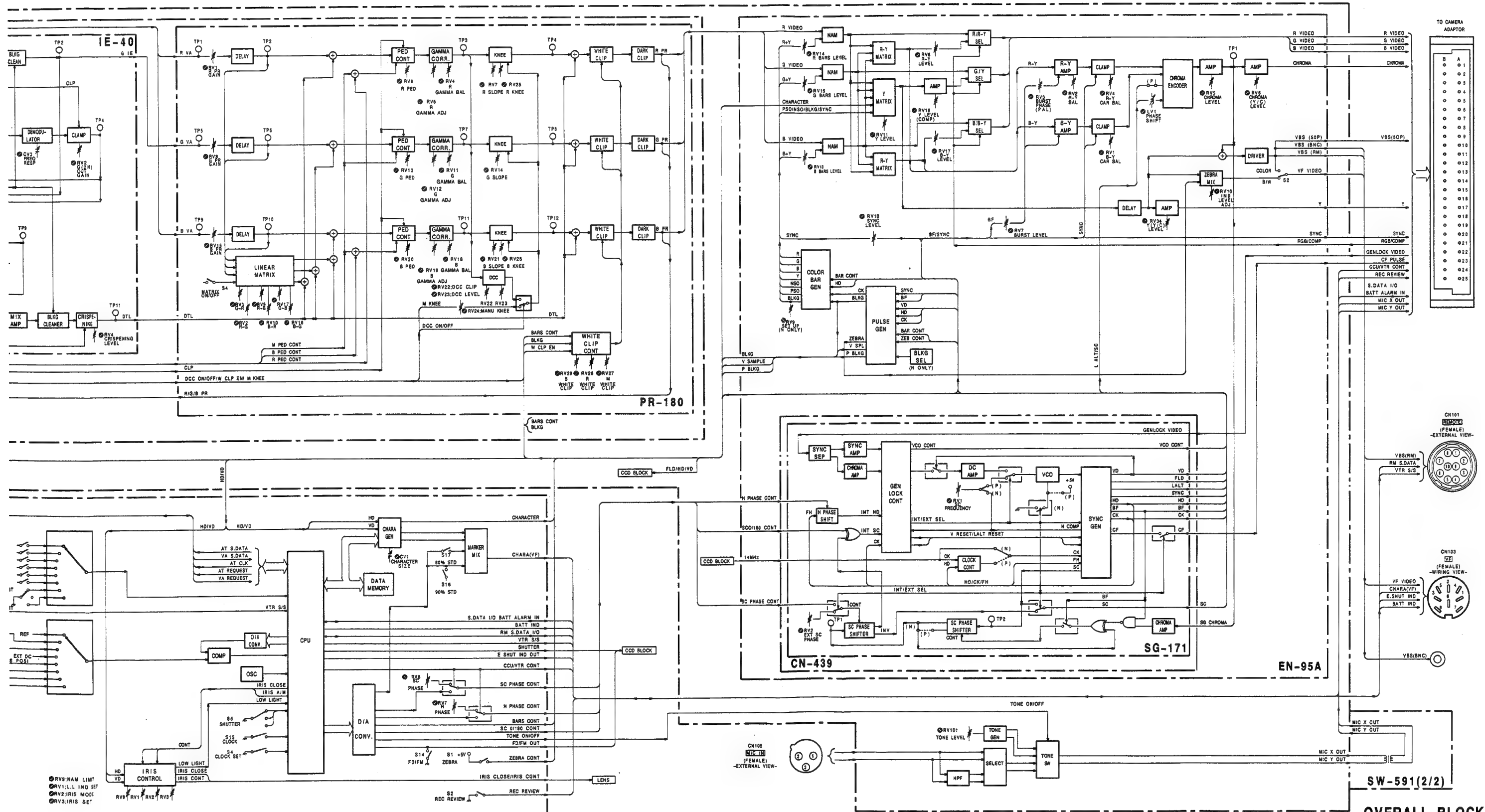


**A-1**

1

OVERALL BLOCK

OVERALL BLOCK

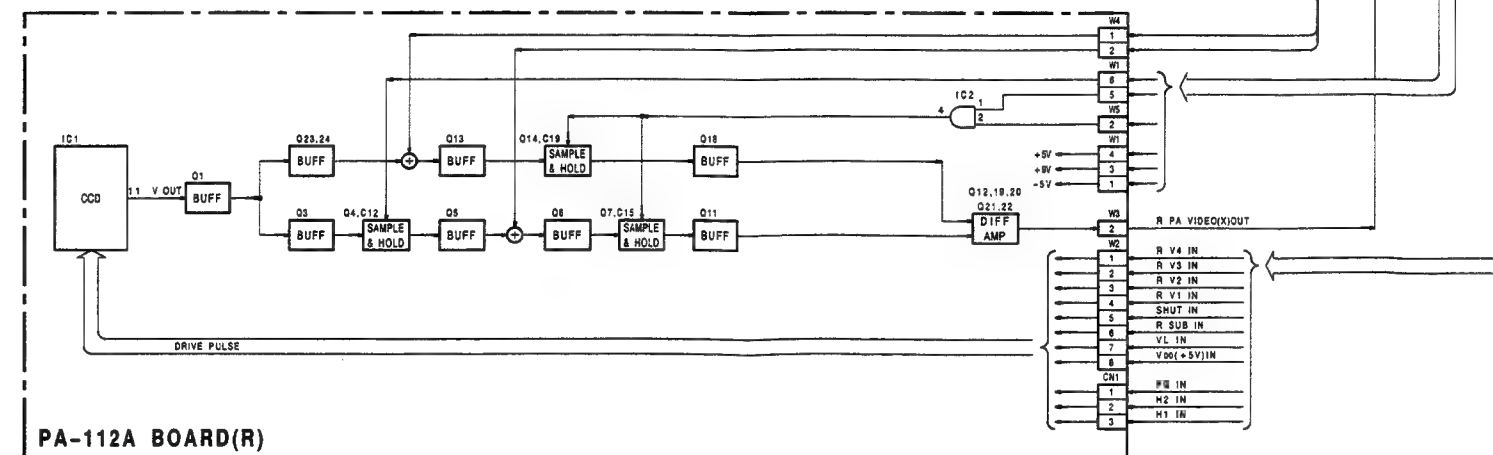
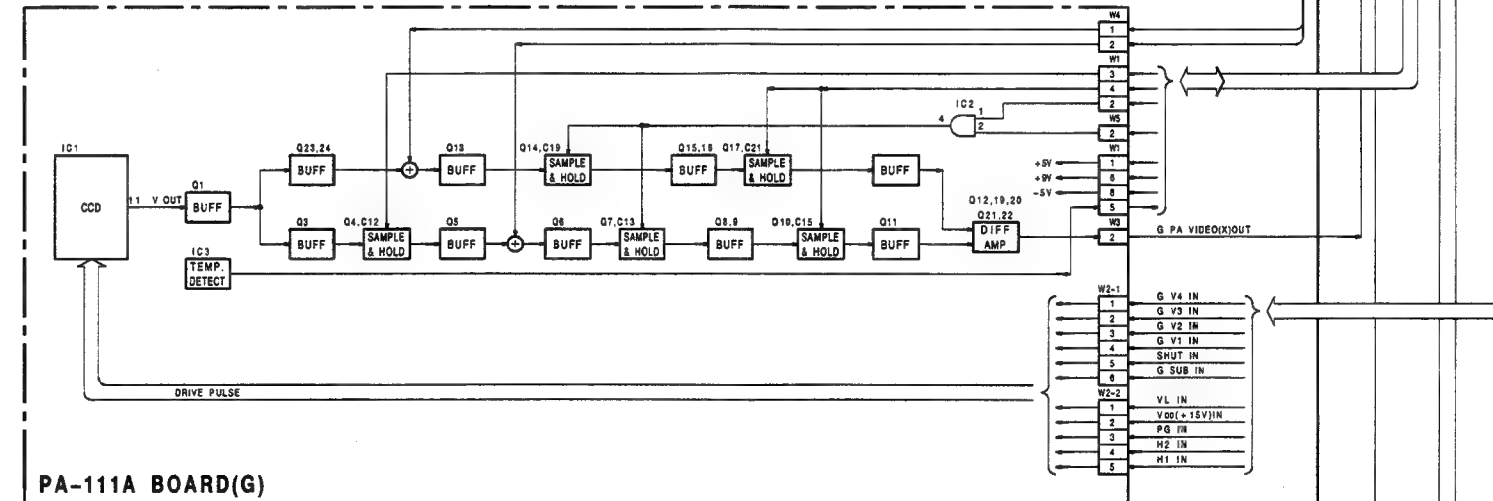
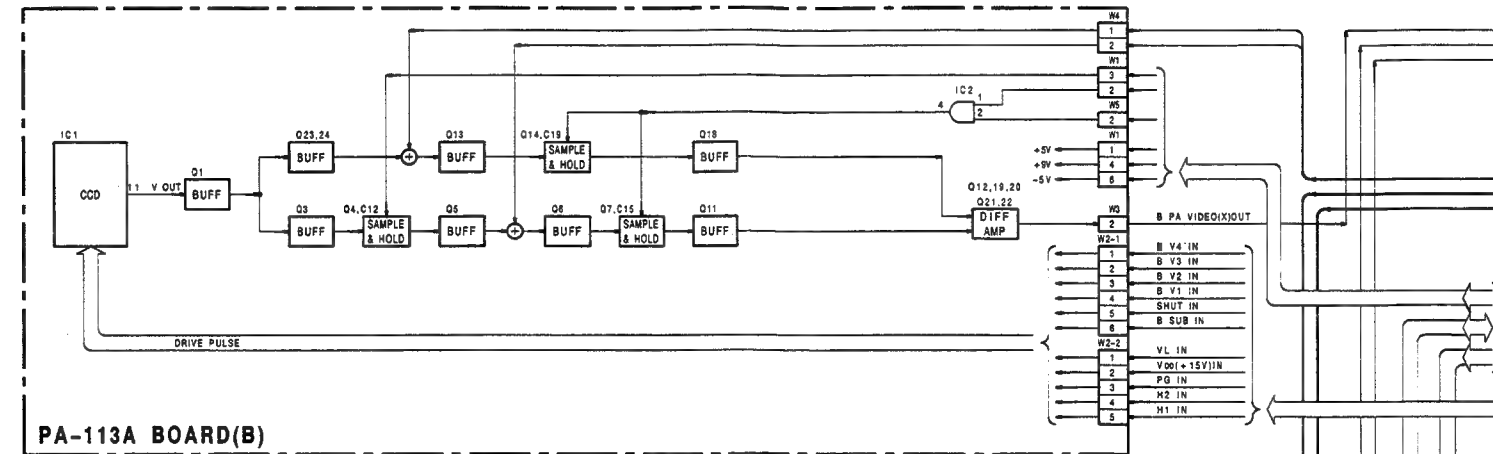


A-1

A-1

P

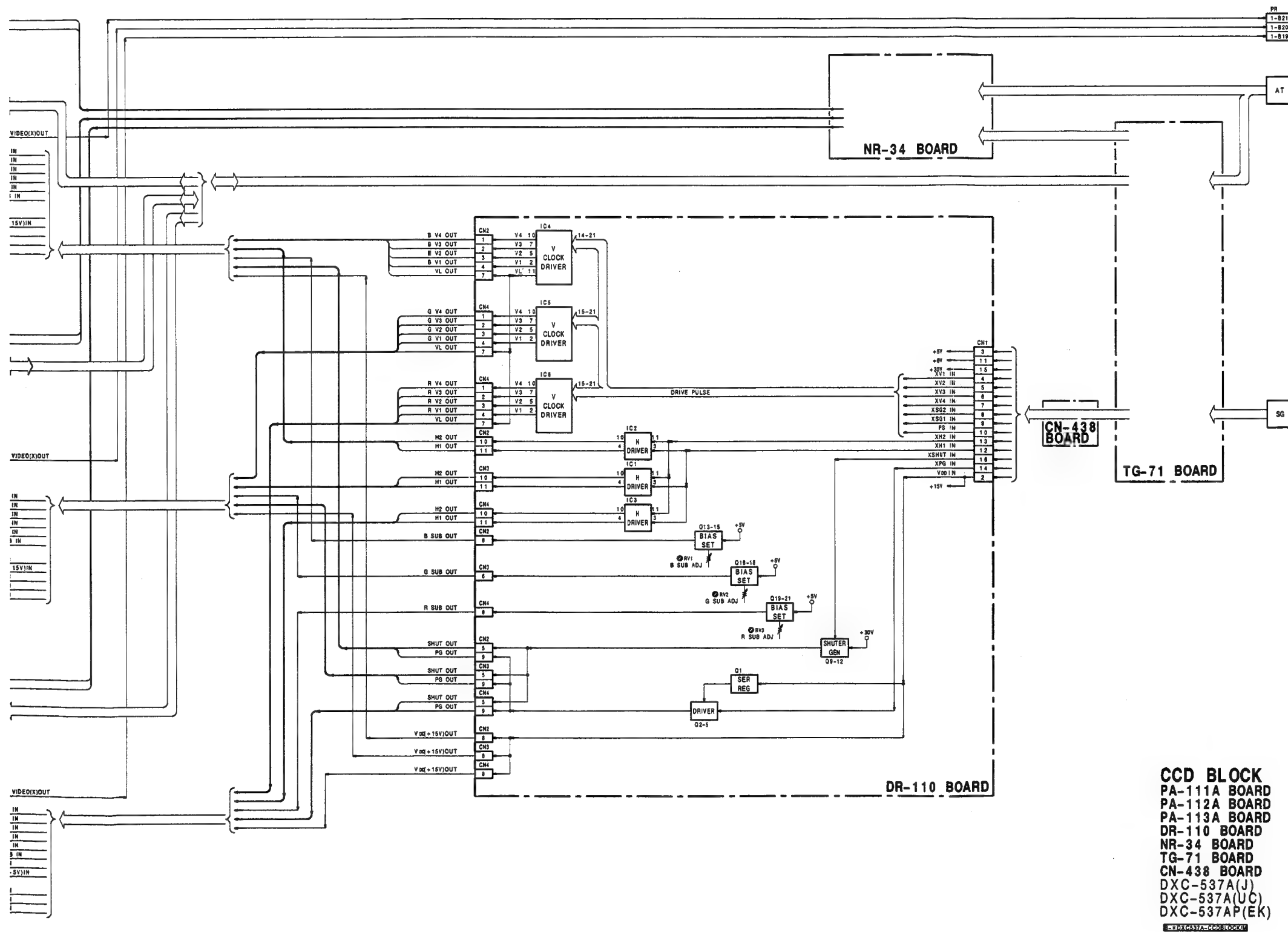
## CCD BLOCK



CCD BLOCK



CCD BLOCK



CCD BLOCK  
 PA-111A BOARD  
 PA-112A BOARD  
 PA-113A BOARD  
 DR-110 BOARD  
 NR-34 BOARD  
 TG-71 BOARD  
 CN-438 BOARD  
 DXC-537A(J)  
 DXC-537A(UC)  
 DXC-537AP(EK)  
 DXC-537A(EK)

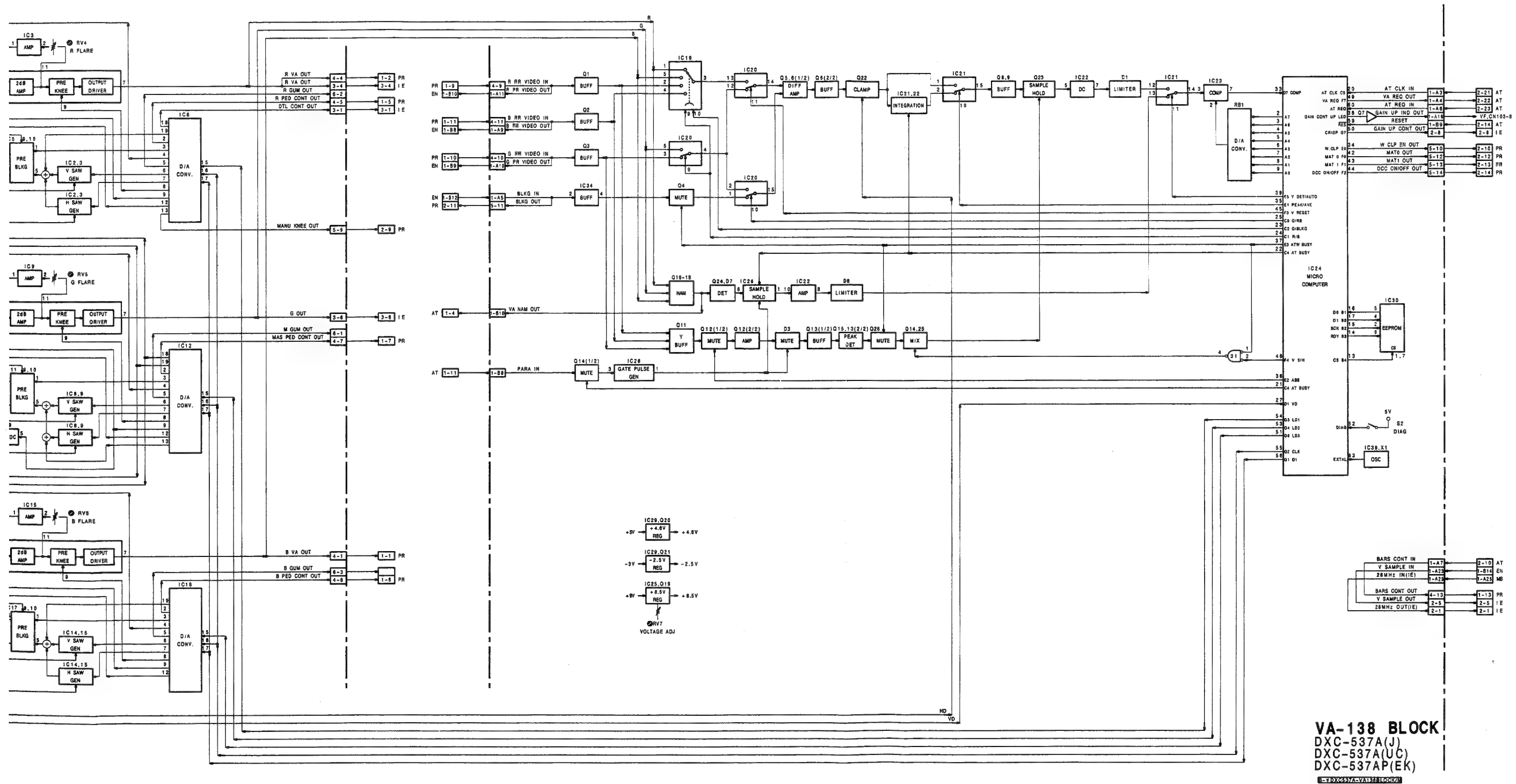
A-2

A-2

DXC-537A (J,UC)  
 DXC-537AP(EK)

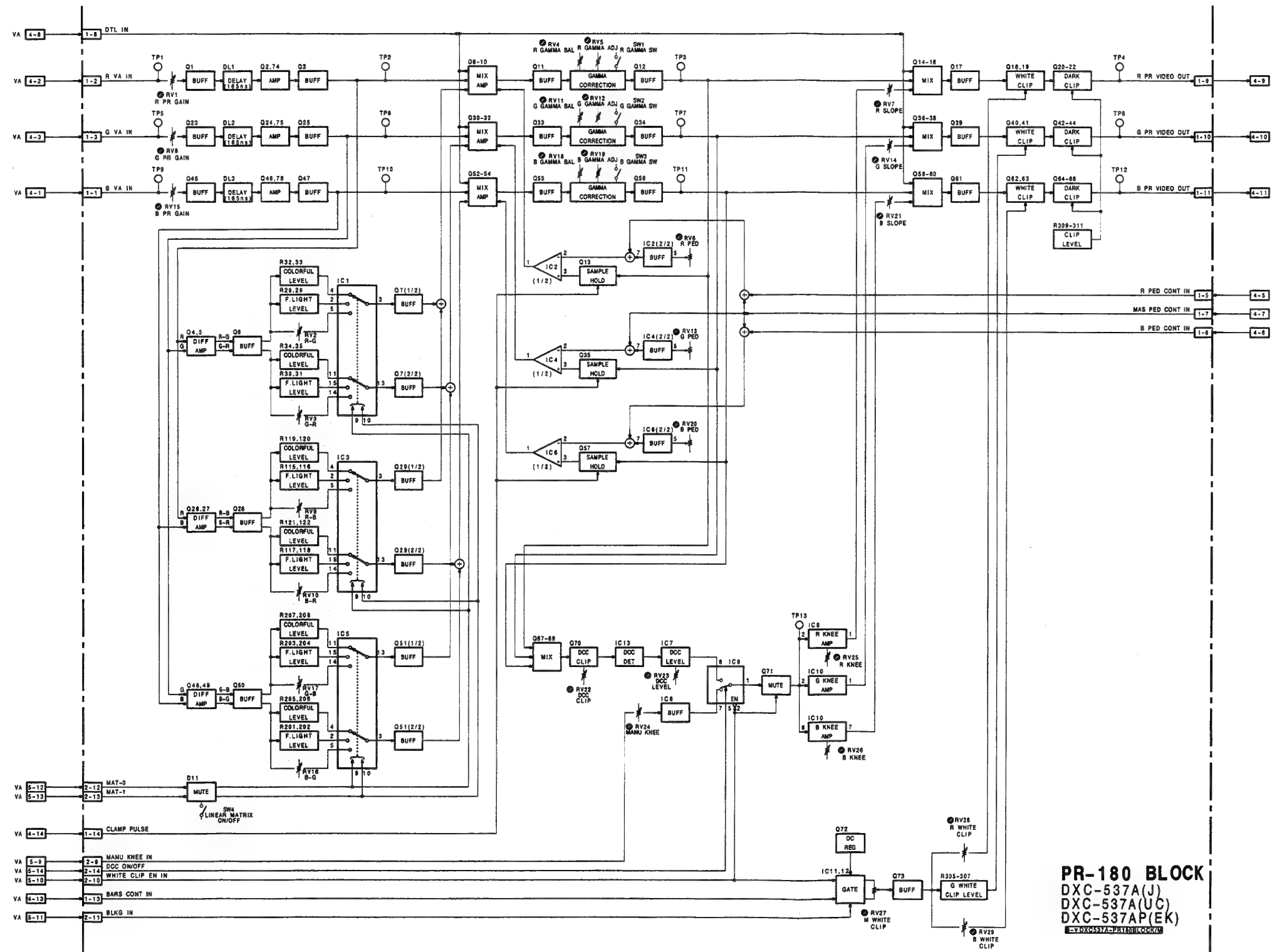
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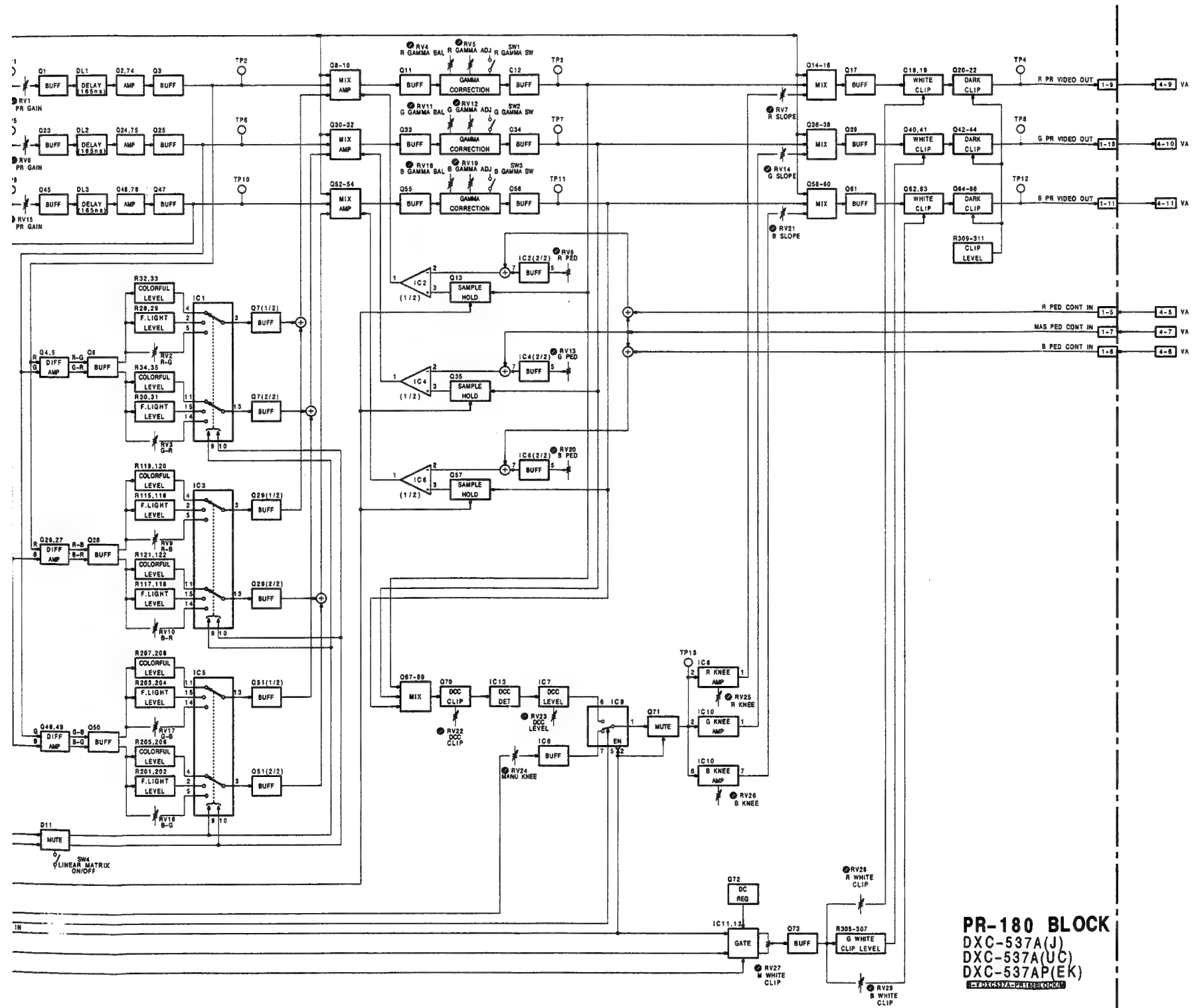
**VA-138 BLOCK**  
DXC-537A(J)  
DXC-537A(UC)  
DXC-537AP(EK)  
**DXC-537A-VA138-BLOCK**

## PR-180 BLOCK

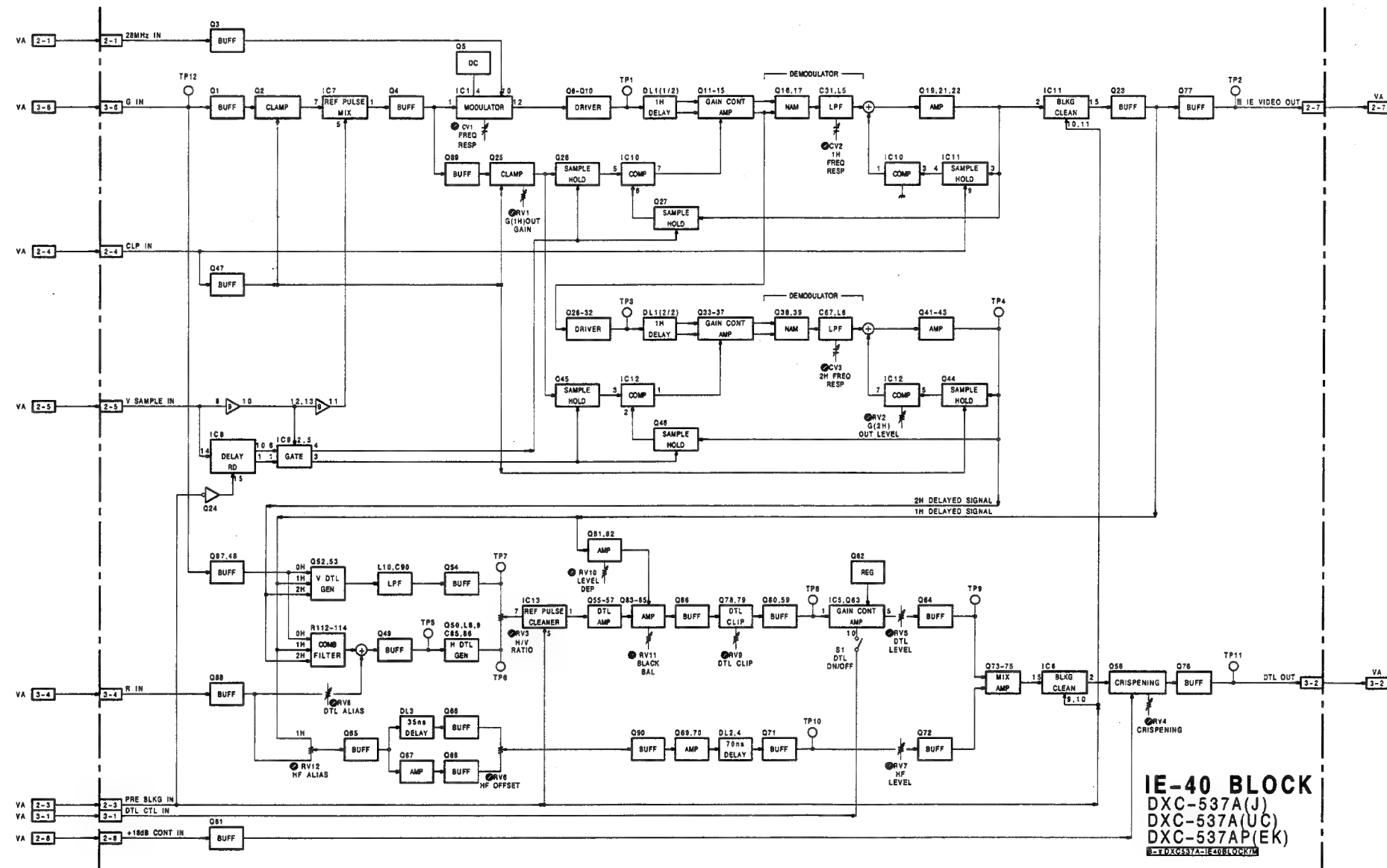


PR-180 BLOCK

PR-180 BLOCK



IE-40 BLOCK



IE-40 BLOCK  
DXC-537A(J)  
DXC-537A(UC)  
DXC-537AP(EK)  
E-T-DXC537A-IE-40 BLOCK

DXC-537A (J,UC)  
DXC-537AP(EK)

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A-5

A | B | C | D | E | F | G | H

1

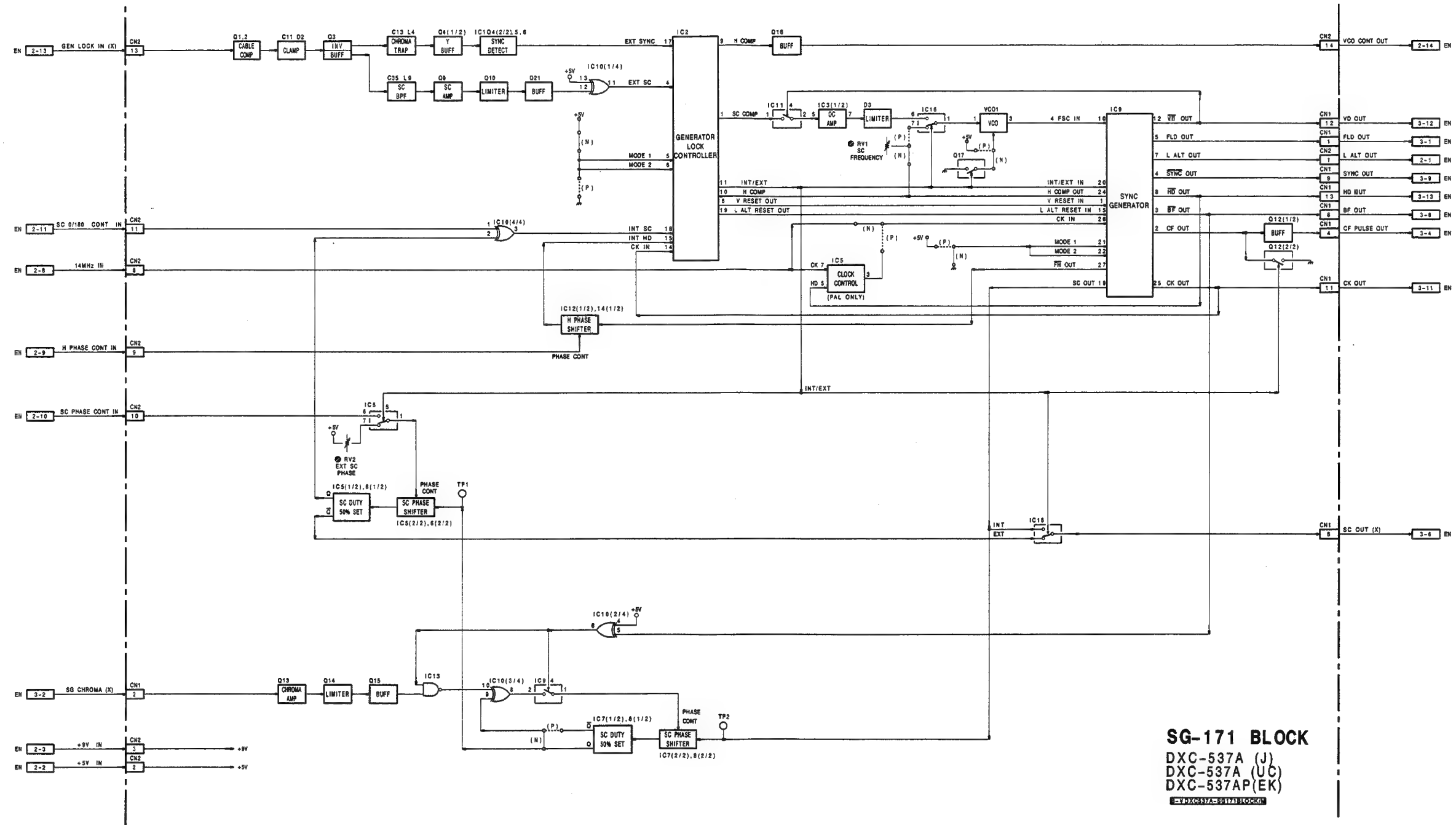
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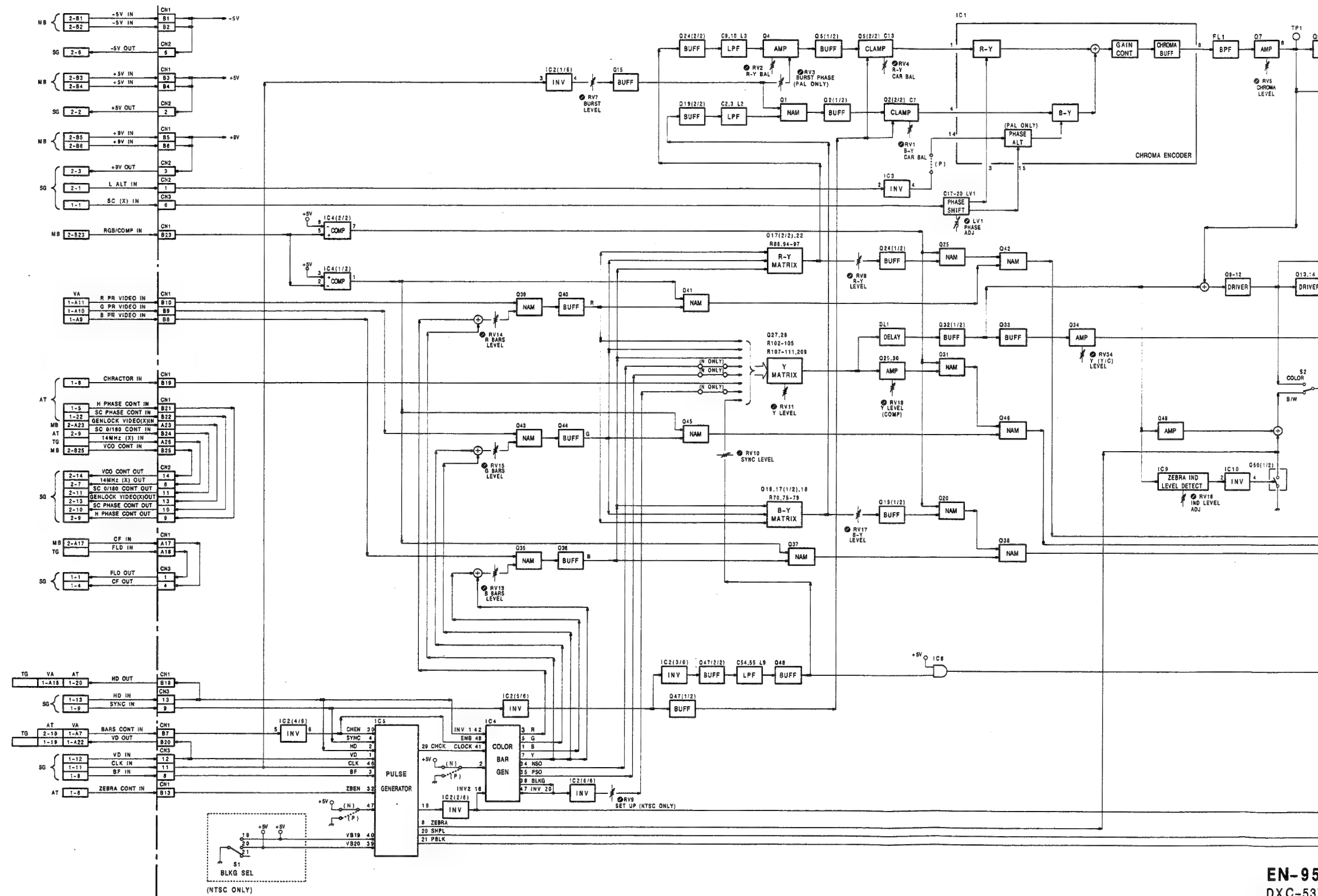
## SG-171 BLOCK



EN-95 BLOCK

EN-95 BLOCK

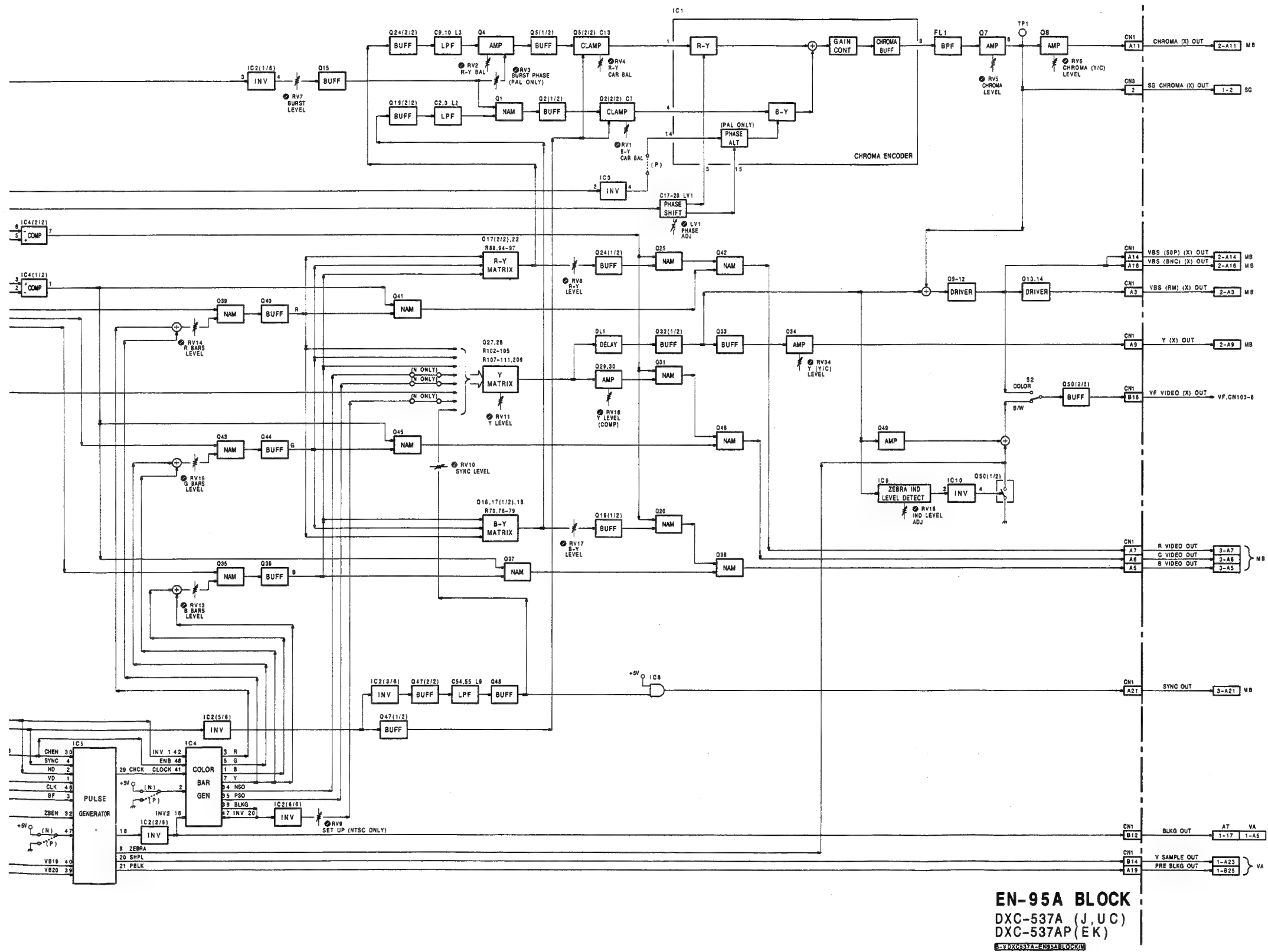
## EN-95 BLOCK

DXC-537A (J,UC)  
DXC-537AP(EK)

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A-7

EN-95  
DXC-53;  
DXC-53;  
H-TDC537A-EN



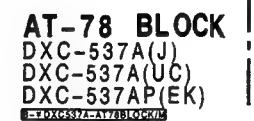
## 1

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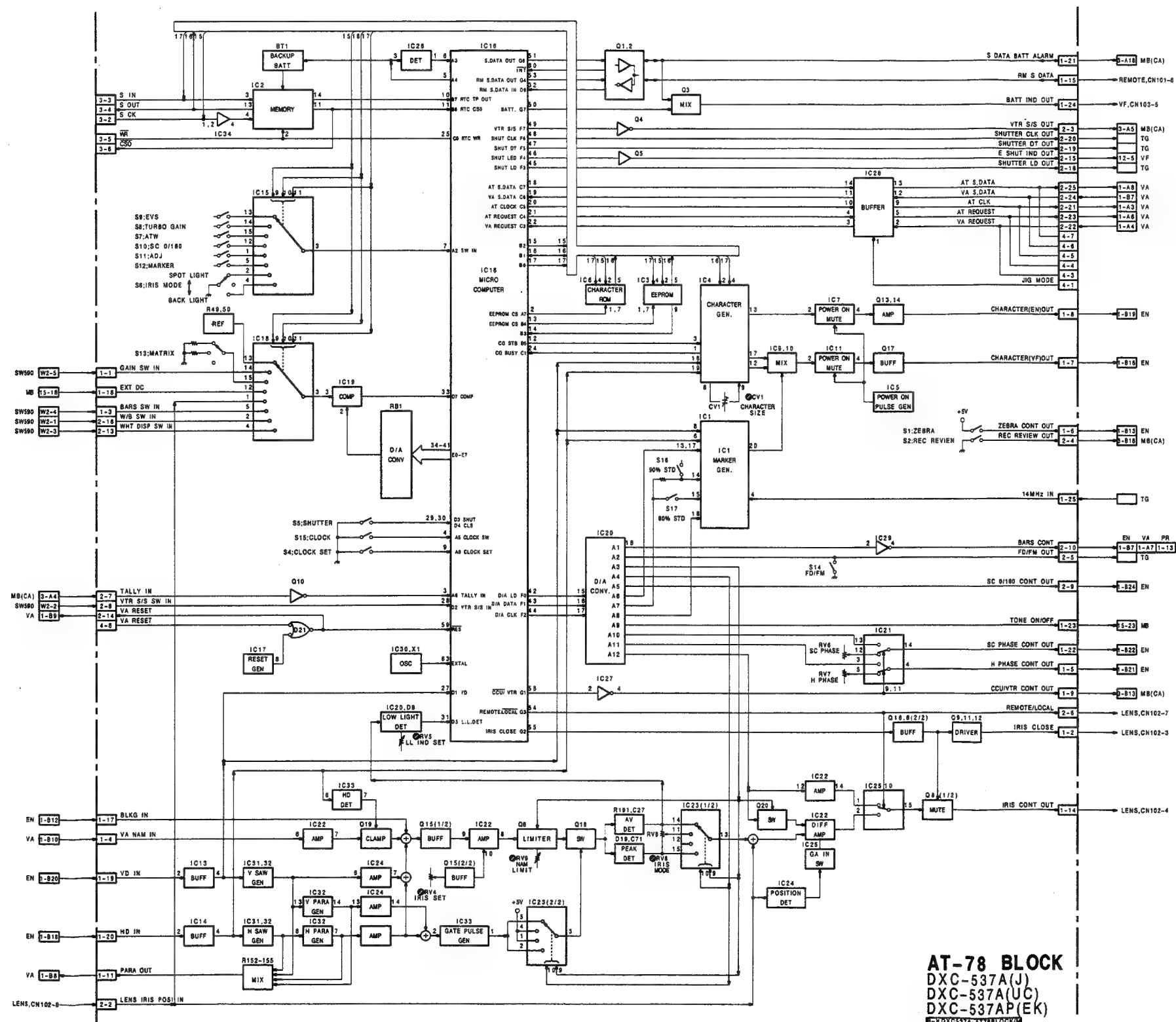
5





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**AT-78 BLOCK**  
DXC-537A(J)  
DXC-537A(UC)  
DXC-537AP(EK)  
**DXC-537A-AT78 BLOCK**



**A-8**

DXC-537A (J, U C)  
DXC-537AP(E K)

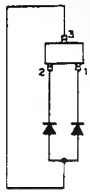
## SECTION B SEMICONDUCTOR

The circuit diagram of IC is obtained from the IC data book published by the manufacture.

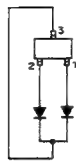
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	CX22017 .....	B-3		TL7700CPS .....	B-23
	CX7968A .....	B-4		UPC311G2 .....	B-23
	CX7969 .....	B-10		UPC358G2 .....	B-23
	CXA1065N .....	B-11		UPC812G2 .....	B-23
	CXD1035BQ-Z .....	B-5		UPD6451AGT .....	B-23
	CXD1216M .....	B-12			
	CXD1217M .....	B-12			
	CXD1361M .....	B-13			
	CXD8095Q .....	B-14			
	CXD8154BM .....	B-16			
	HD6305Y0E91F .....	B-15			
	HD6305Y0E92F .....	B-15			
	LM35DZ .....	B-16			

# DIODE, TRANSISTOR

## DIODE



1S2835  
1SS303  
HSM88WA



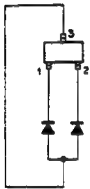
1S2837



1SS123  
HSM107S  
HSM88AS



HZS ? ?CLL



MA141WK



MA143

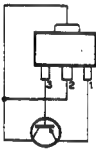


RD ? ?MB

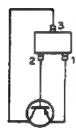


U05G

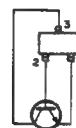
## TRANSISTOR



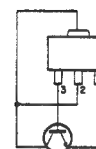
2SA1213  
2SB798  
2SB799



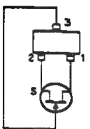
2SA1226  
2SA1462  
2SA1576  
2SA1610  
2SA1611  
2SA812  
2SB815



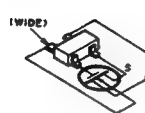
2SC1009A  
2SC1623  
2SC2757  
2SC4081  
2SC4176  
2SC4177  
2SD1048  
NTM2369



2SC2873Y  
2SD999



2SK853  
2SK94



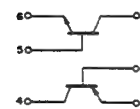
3SK163



XN4601



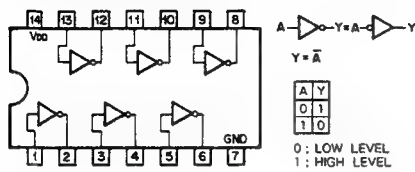
XN6401  
XN6435



XN6501  
XN6534



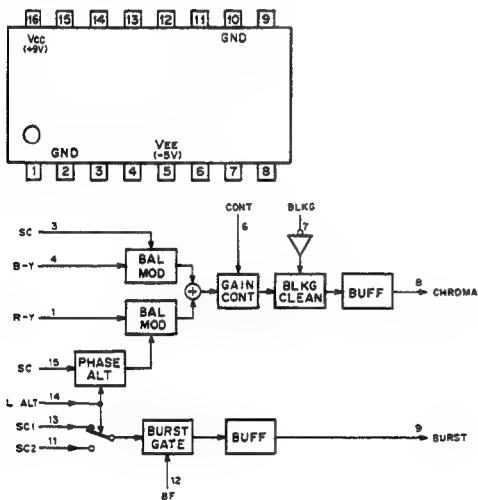
74AC04SJ (NS) FLAT PACKAGE  
 SN74HC04ANS (TI) FLAT PACKAGE  
 CMOS HEX INVERTERS  
 - TOP VIEW -



NOTE:

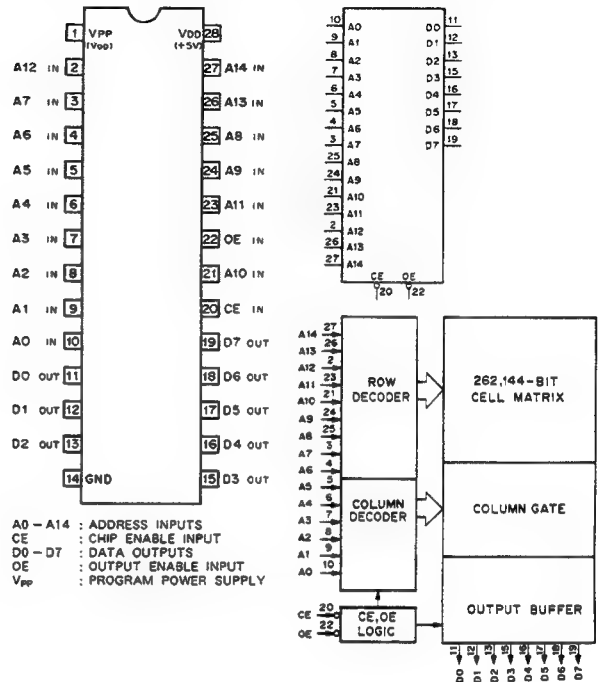
TYPE	V <sub>DD</sub>
74HCT04 TYPE	+5V
74VHC	+2 to +5.5V
74AC04 TYPE	+2 to +5.5V
74ACT04 TYPE	+4.5 to +5.5V
OTHER TYPES	+2 to +6V

CX22017 (SONY)  
 VIDEO SIGNAL PROCESSOR  
 - TOP VIEW -



AT27C256R-15RC (ATMEL)

C-MOS 256K (32Kx8)-BIT UV ERASABLE PROM WITH 3-STATE OUTPUTS  
 - TOP VIEW -



A <sub>n</sub>	CE	OE	V <sub>DD</sub>	V <sub>PP</sub>	D <sub>n</sub>	FUNCTION
A <sub>n</sub>	0	0	+5V	+5V	D <sub>OUT</sub>	READ
A <sub>n</sub>	0	1	+5V	+5V	HI-Z	OUTPUT DISABLE
X	1	X	+5V	+5V	HI-Z	STANDBY
A <sub>n</sub>	0	1	+6V	+12.5V	O <sub>INH</sub>	PGM
A <sub>n</sub>	1	0	+6V	+12.5V	D <sub>OUT</sub>	PGM VERIFY(1)
A <sub>n</sub>	0	0	+6V	+12.5V	D <sub>OUT</sub>	PGM VERIFY(2)
X	1	1	+6V	+12.5V	HI-Z	PGM INH
A <sub>0</sub>	0	0	+5V	+5V	DEVICE CODE	ELECTRONIC SIGNATURE*

\*SEE FOLLOWING DESCRIPTION.

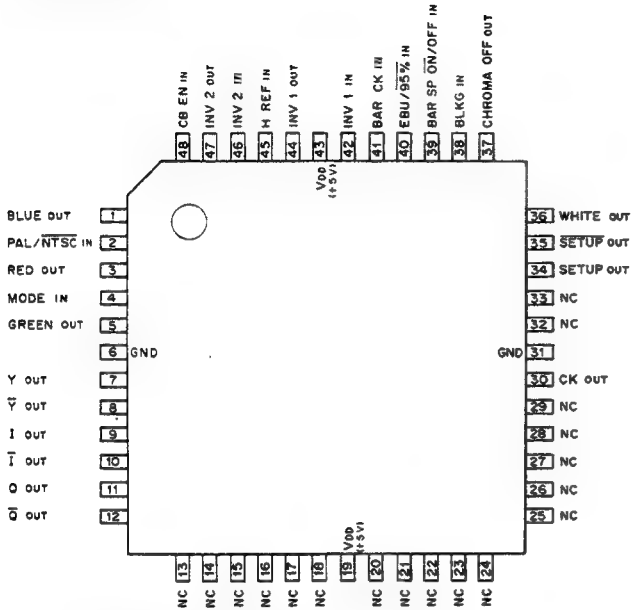
ELECTRONIC SIGNATURE FOR P ROM WRITER

ADDRESS SETTINGS IN READ MODE

A1-A8	A9	A10-A13	A14, V <sub>PP</sub>
0	12V	0	1

	A0	D7	D6	D5	D4	D3	D2	D1	D0
MAKER CODE	0	0	0	0	0	0	1	0	0
DEVICE CODE	1	0	1	1	0	0	0	1	0

CX7968A (SONY)  
C-MOS COLOR BAR GENERATOR  
- TOP VIEW -



INPUT				FUNCTION
PAL/NTSC	MODE	EBU/95%	BAR SP	
0	0	0	0	EIAJ COLOR BAR
0	0	0	1	FULL FIELD COLOR BAR
0	0	1	0	INHIBIT
0	0	1	1	INHIBIT
0	1	0	0	EIAJ COLOR BAR
0	1	0	1	FULL FIELD COLOR BAR
0	1	1	0	SMPTE COLOR BAR
0	1	1	1	COLOR BAR + Y BAR
1	0	0	0	95% COLOR BAR
1	0	0	1	INHIBIT
1	0	1	0	EBU COLOR BAR
1	0	1	1	INHIBIT
1	1	0	0	95% COLOR BAR
1	1	0	1	COLOR BAR + Y BAR
1	1	1	0	EBU COLOR BAR
1	1	1	1	INHIBIT

0 : LOW LEVEL  
1 : HIGH LEVEL

## O COLOR BAR PATTERN

EIAJ COLOR BAR (NTSC)					
GRAY	YELLOW	CYAN	GREEN	MAGENTA	RED
BLUE					
-1	WHITE	+0		BLACK	

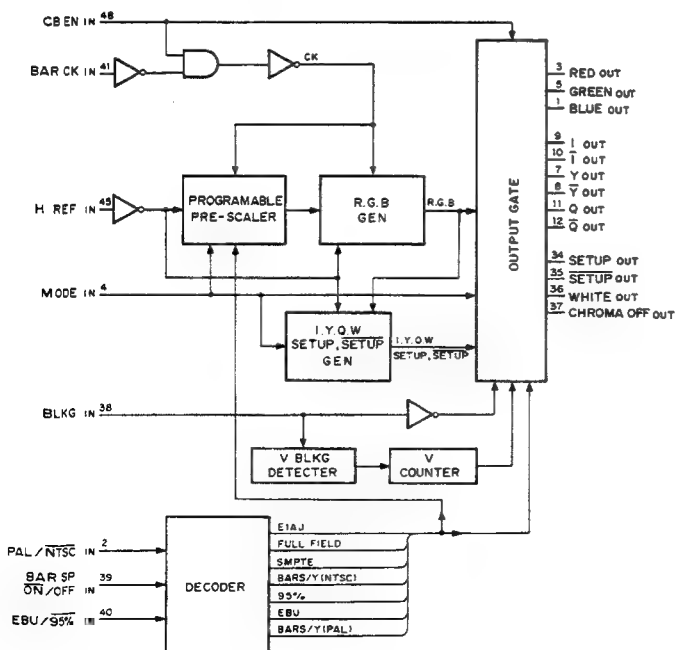
COLOR BAR + Y BAR (PAL) or (NTSC)							
WHITE	YELLOW	CYAN	GREEN	MAGENTA	RED	BLUE	BLACK
WHITE	GRAY	GRAY	GRAY	GRAY	GRAY	GRAY	BLACK

FULL FIELD COLOR BAR (NTSC)					
GRAY	YELLOW	CYAN	GREEN	MAGENTA	RED
BLUE					

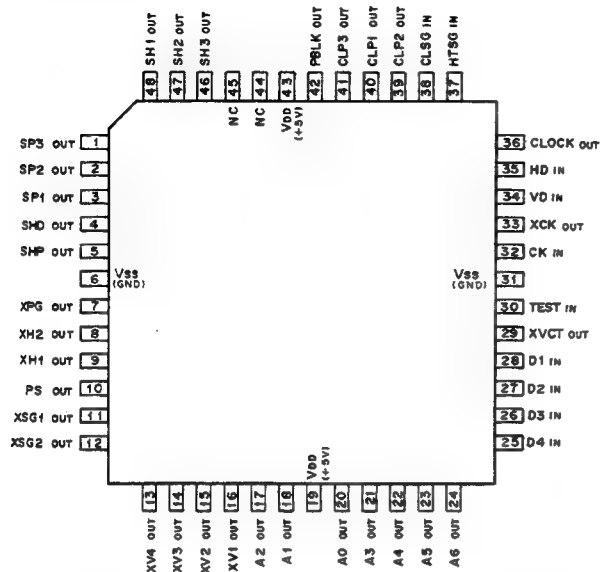
95% COLOR BAR (PAL)							
WHITE	YELLOW	CYAN	GREEN	MAGENTA	RED	BLUE	BLACK

SMPTE COLOR BAR (NTSC)					
GRAY	YELLOW	CYAN	GREEN	MAGENTA	RED
BLUE	BLACK	MAGENTA	BLACK	CYAN	BLACK
GRAY					
-1	WHITE	+0	BLACK	BLACK	BLACK

EBU COLOR BAR (PAL)							
WHITE	YELLOW	CYAN	GREEN	MAGENTA	RED	BLUE	BLACK



CXD1035BQ-Z (SONY) FLAT PACKAGE  
C-MOS TIMING PULSE GENERATOR FOR CCD CAMERA  
- TOP VIEW -

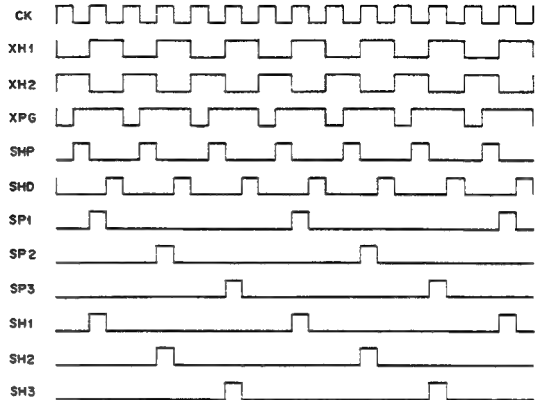


MODE SELECTION WITHOUT ROM	
HIGH (V <sub>DD</sub> ) LEVEL	LOW (V <sub>SS</sub> ) LEVEL
D1	*
D2	1-CHIP COLOR
D3	B/W, 3-CHIP COLOR
D4	FRAME
D4	FIELD
D4	(EIA INTSC, PAL-M) (CCIR/PAL, SECAM)

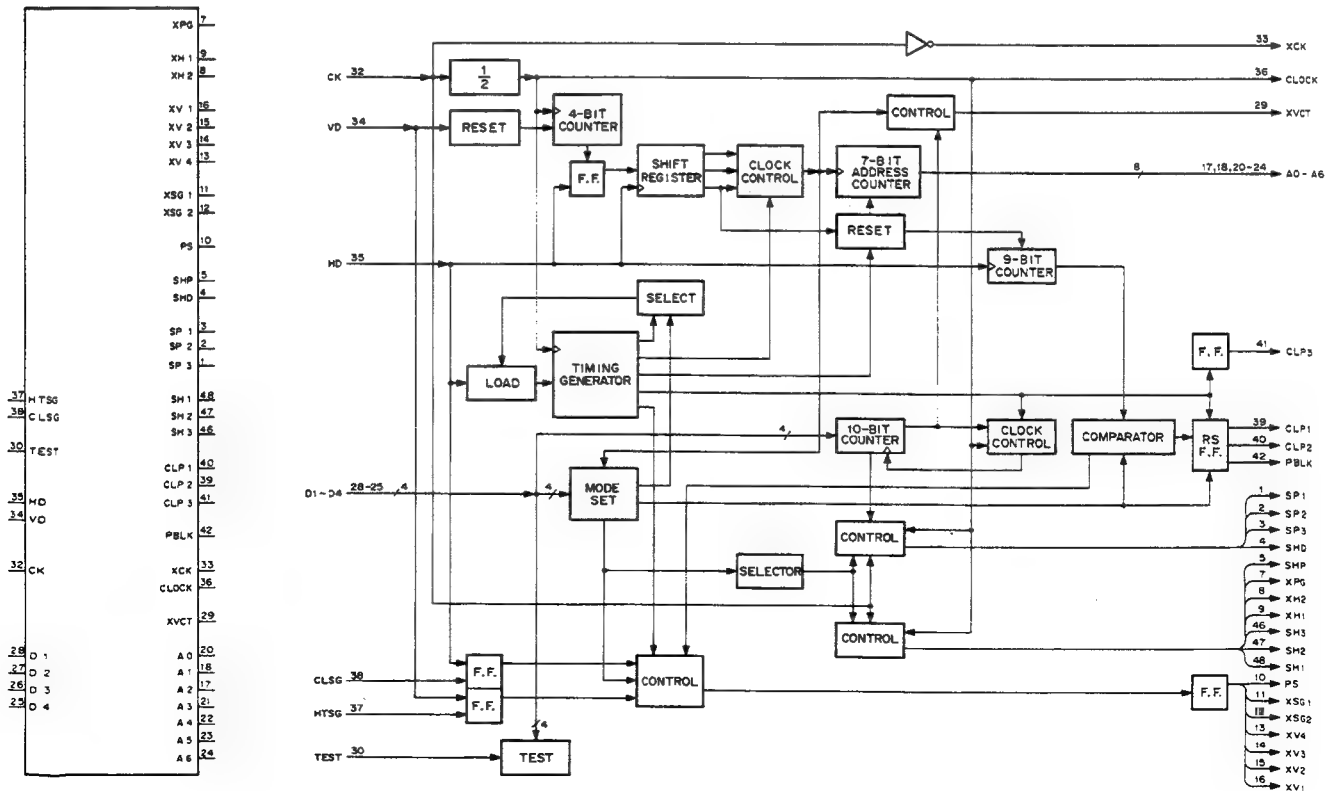
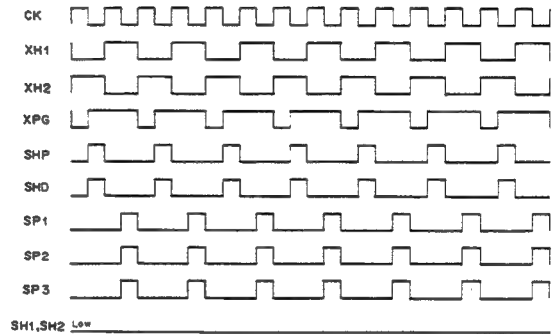
\* Connect D1 to GND without ROM (ROM OFF)

D1 - D4 : EXTERNAL ROM DATA INPUT  
A0 - A6 : EXTERNAL ROM ADDRESS OUTPUT

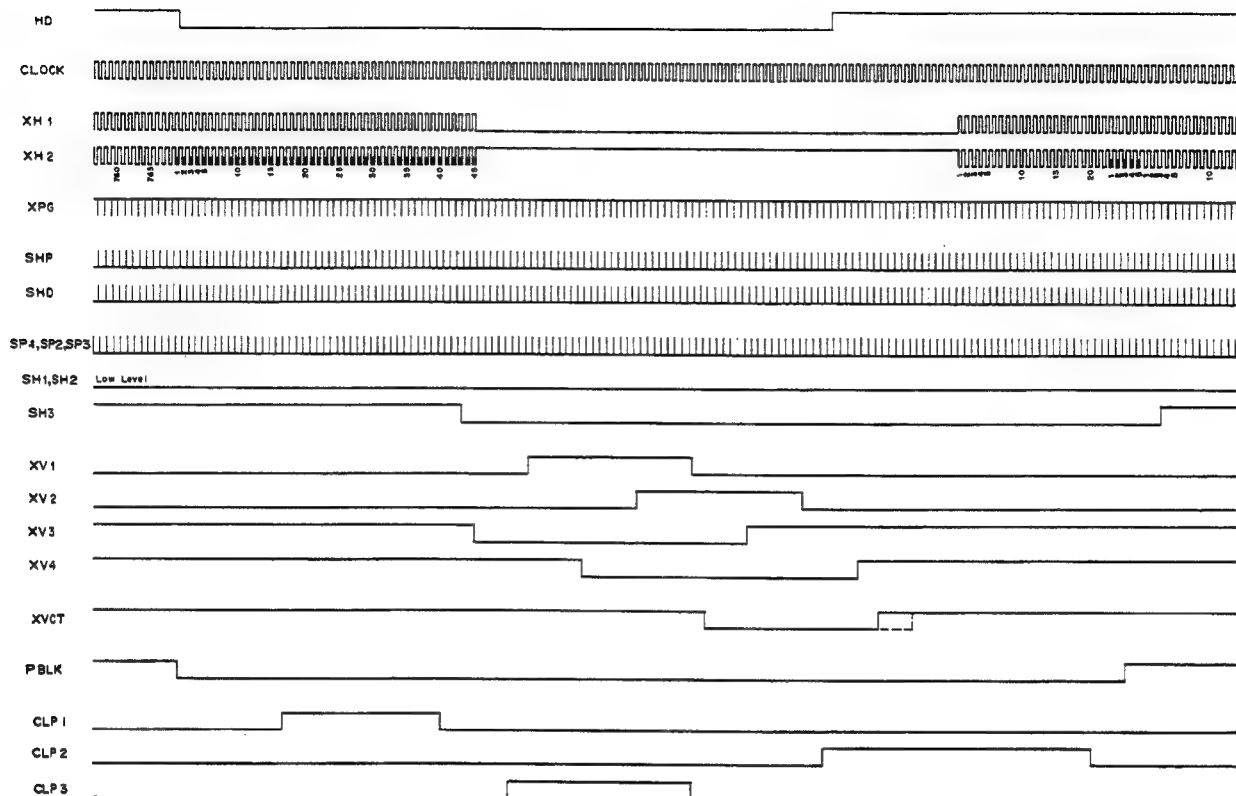
1-CHIP COLOR



B/W, 3-CHIP COLOR



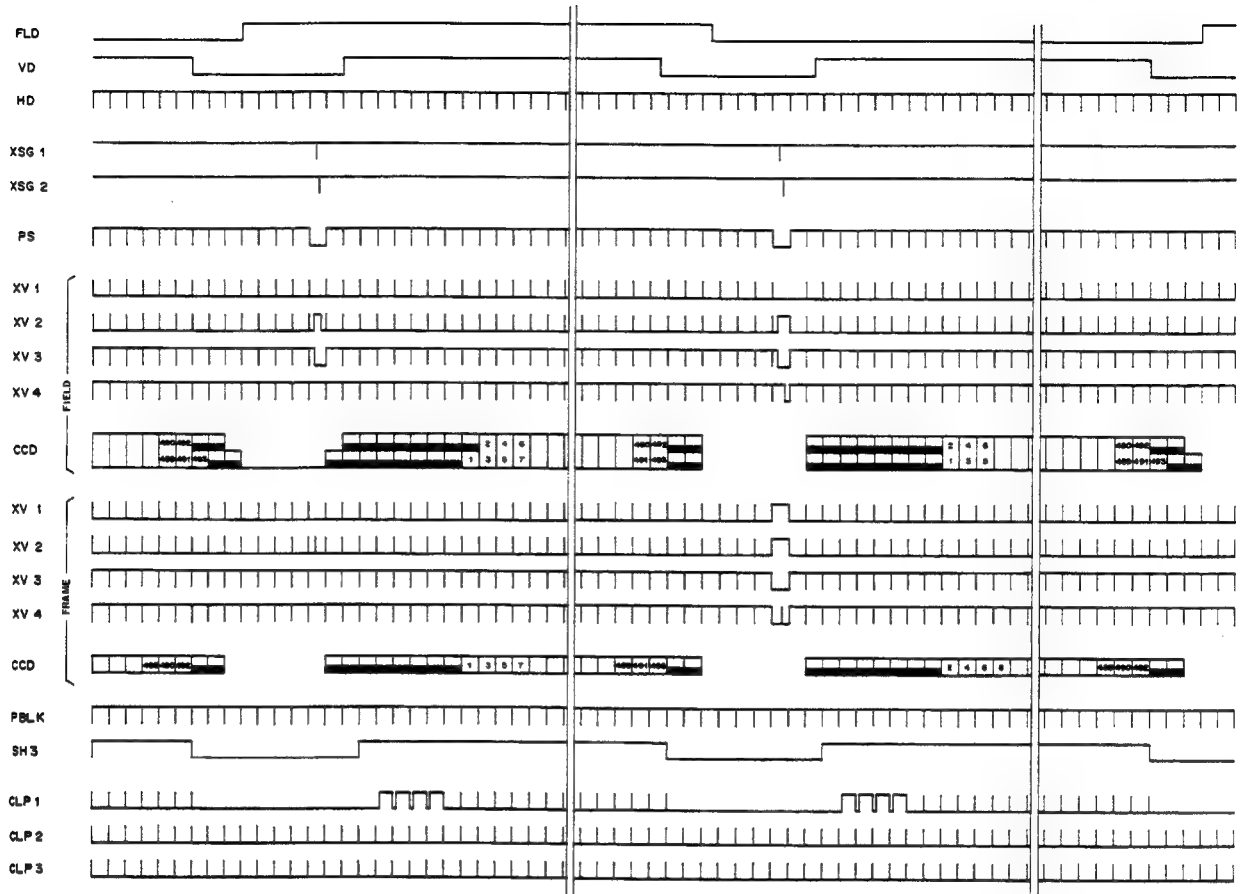
EIA (NTSC, PALM) B/W, 3-CHIP COLOR



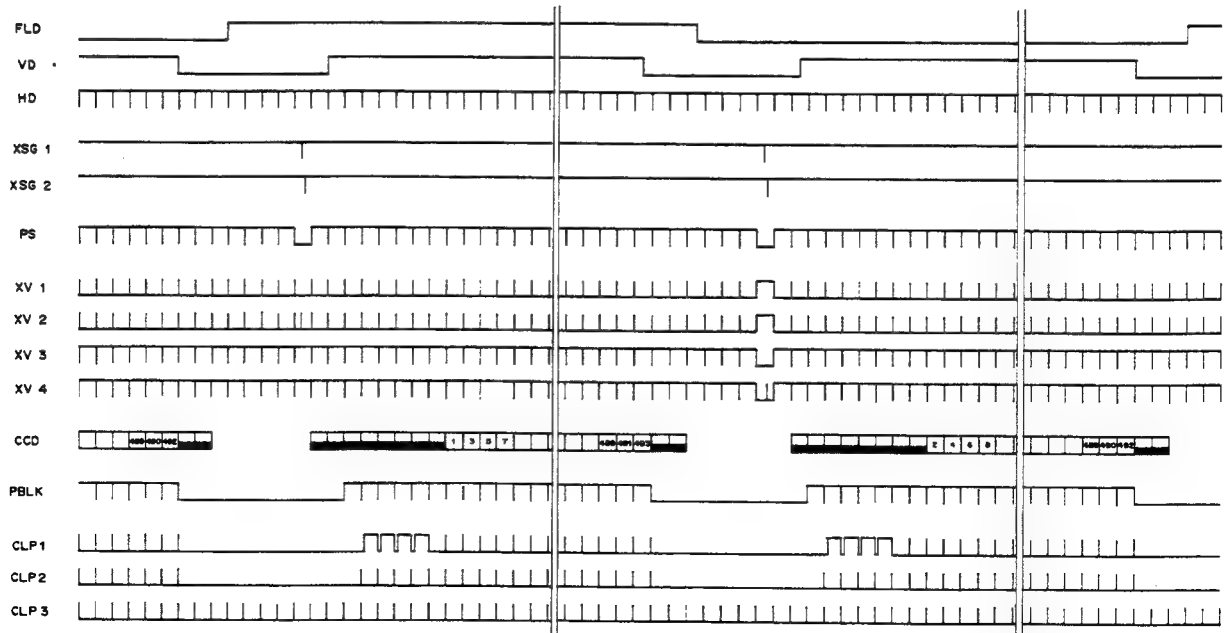
EIA (NTSC, PALM) 1-CHIP COLOR



EIA(NTSC,PALM) 8/W,3-CHIP COLOR

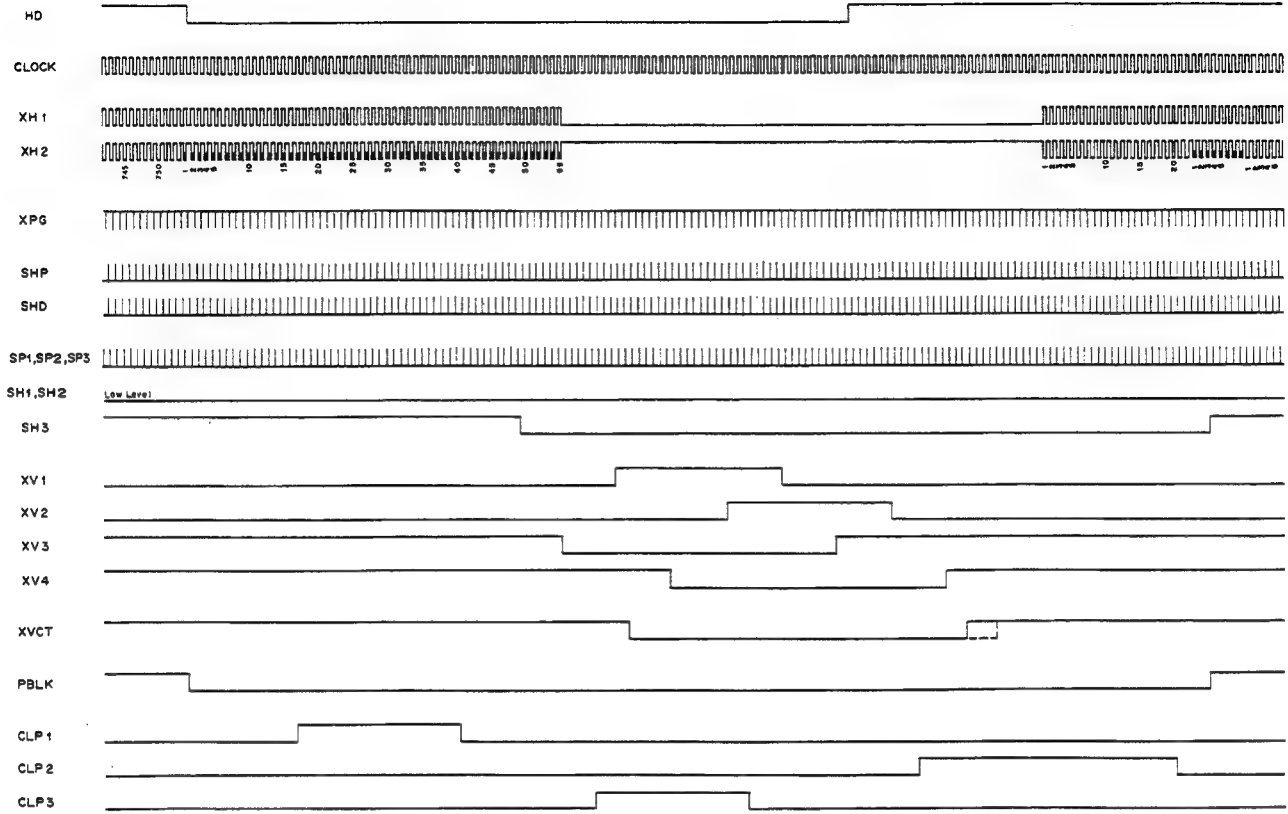


EIA(NTSC,PALM) 1-CHIP COLOR

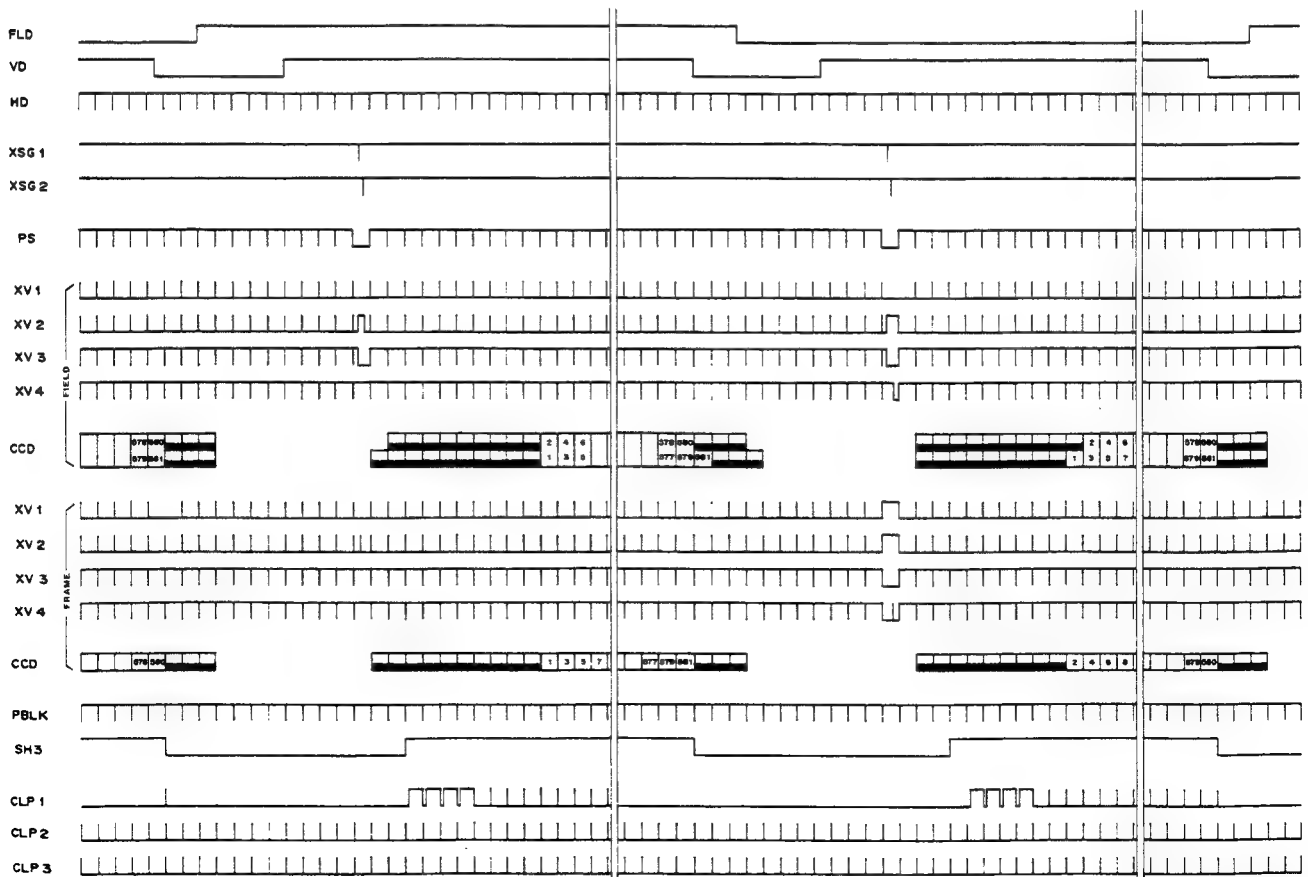




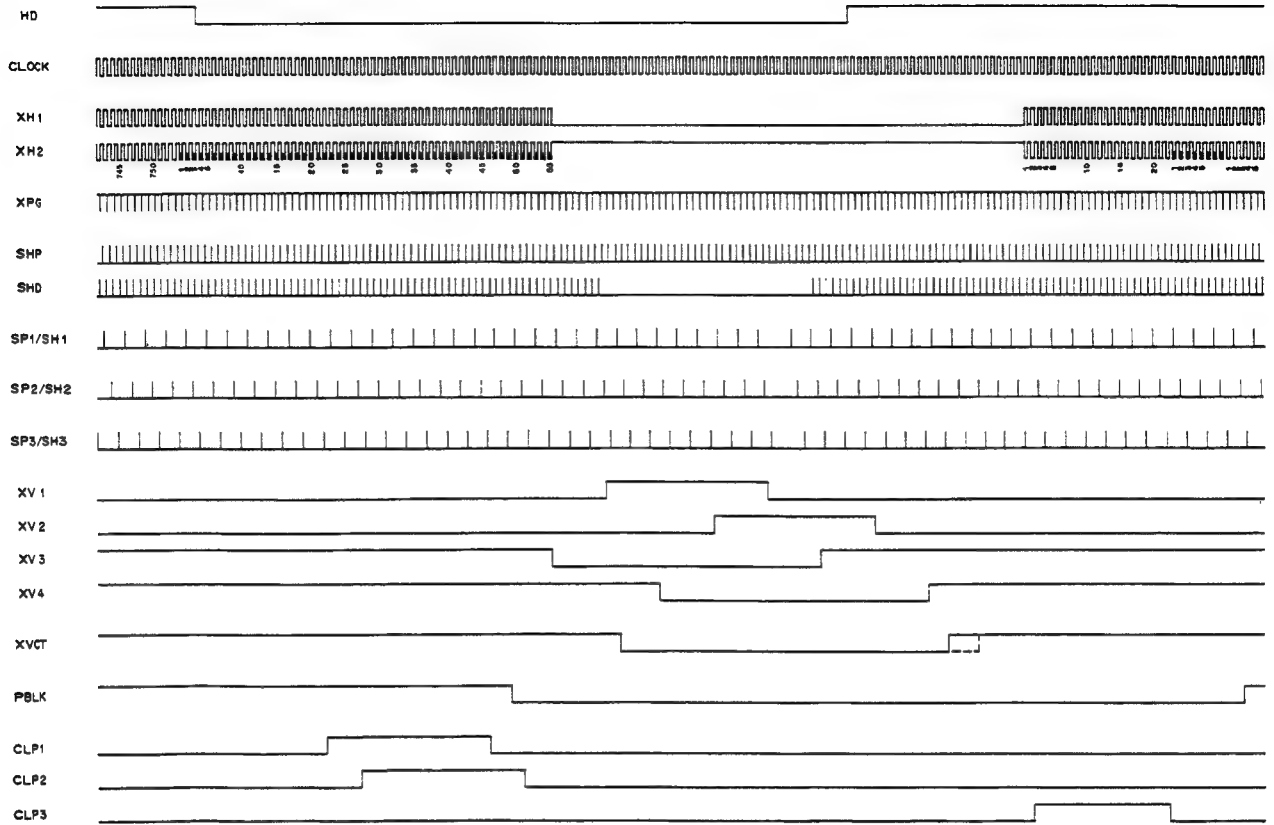
CCIR (PAL, SECAM) B/W, 3CHIP COLOR



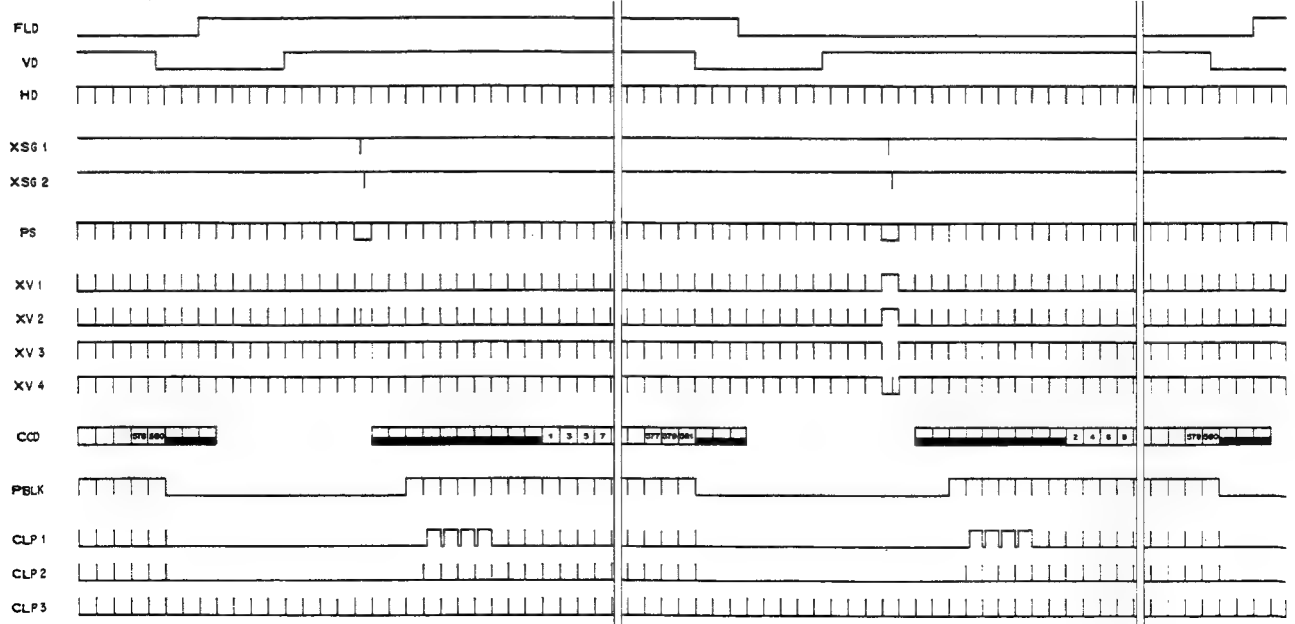
CCIR (PAL, SECAM) B/W, 3-CHIP COLOR



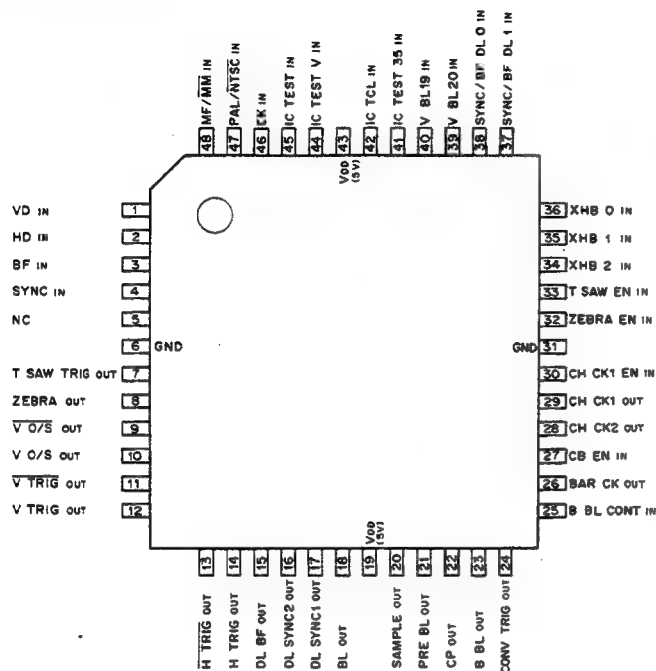
CCIR (PAL, SECAM) 1-CHIP COLOR



CCIR (PAL, SECAM) 1-CHIP COLOR



CX7969 (SONY)  
CMOS PULSE GENERATOR  
- TOP VIEW -



## 1. SYSTEM DESIGNATION

INPUT	SYSTEM
PAL/NTSC IN	
1	PAL, SECAM
0	NTSC, PALM

## 2. TYPE OF TUBE

INPUT	FUNCTION
MF/MM IN	
1	MAG-STA TUBE
0	MAG-MAG TUBE

## 3. V BLKG WIDTH (NTSC ONLY)

INPUT	V BL 19	V BL 20	V BLKG WIDTH
1	X		19H
0	1		20H
0	0		21H

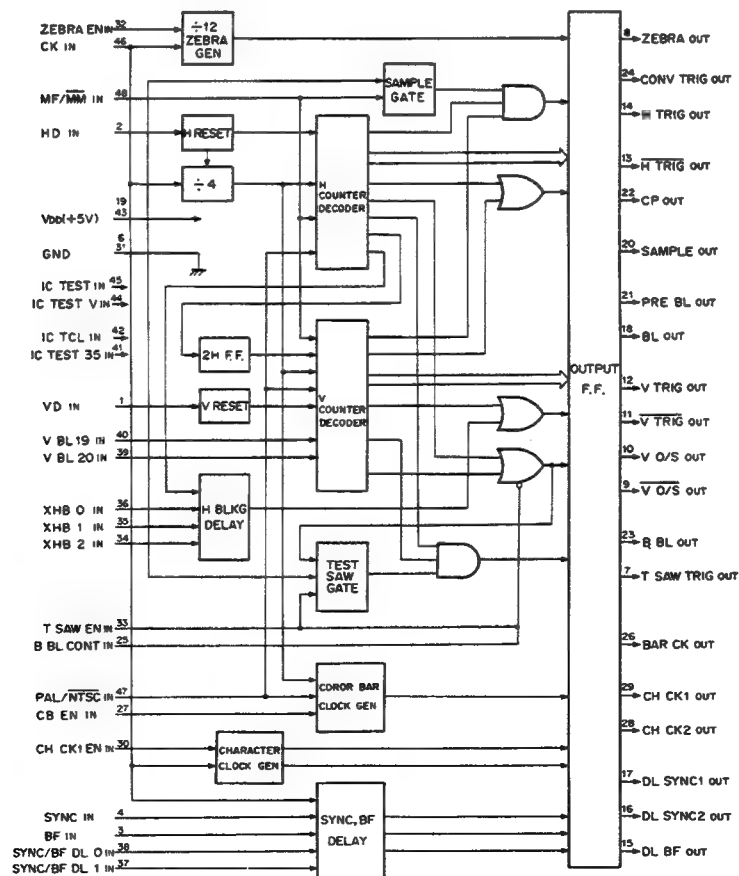
## 4. H BLKG WIDTH

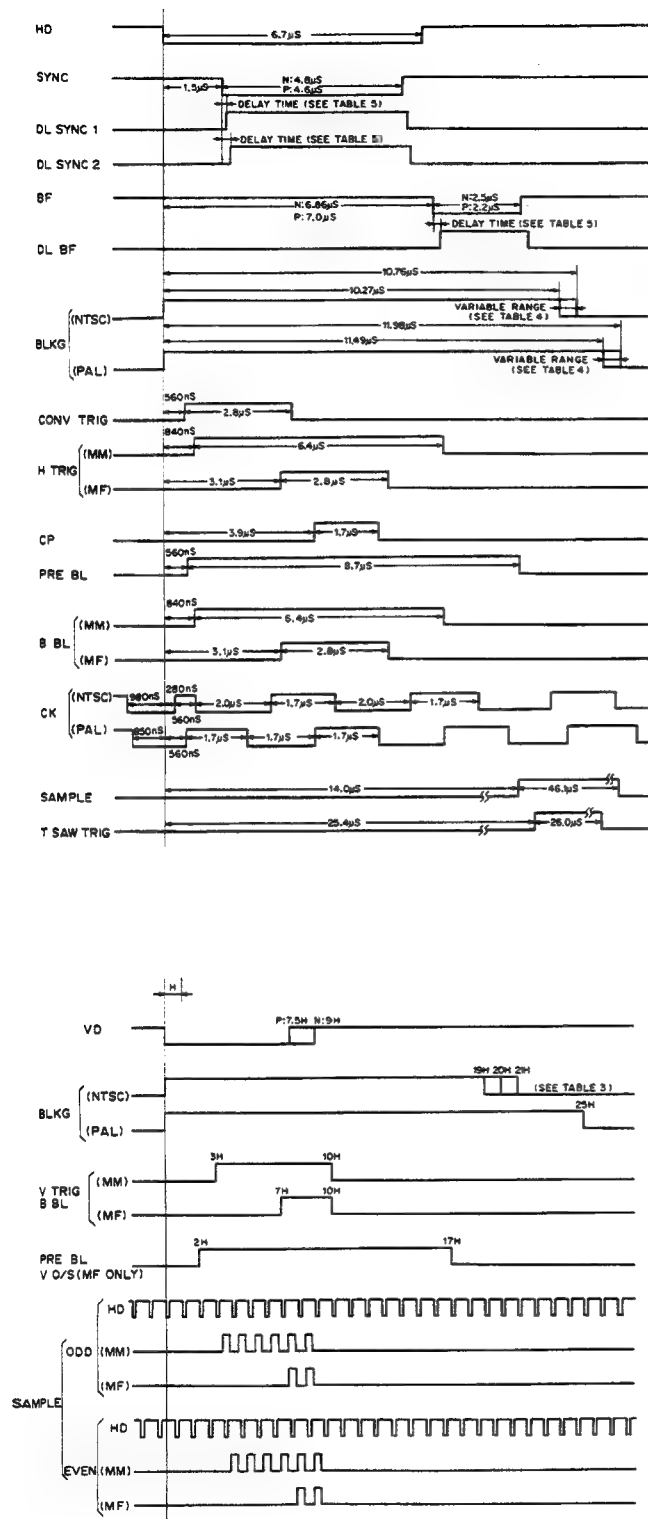
INPUT	XHB2	XHB1	XHB0	NTSC	PAL
1	1	1	1	10.27	11.49
1	1	0		10.34	11.56
1	0	1		10.41	11.63
1	0	0		10.48	11.70
0	1	1		10.55	11.77
0	1	0		10.62	11.84
0	0	1		10.69	11.91
0	0	0		10.76	11.98

## 5. DELAY TIME

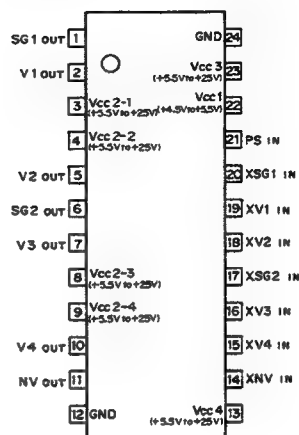
INPUT	SYNC/BF DL1	SYNC/BF DL2	DL SYNC 1	DL SYNC 2	DL BF
1	1	1	140	210	140
1	0		210	280	210
0	1		630	700	630
0	0		700	770	700

1; HIGH LEVEL  
0; LOW LEVEL  
X; DON'T CARE

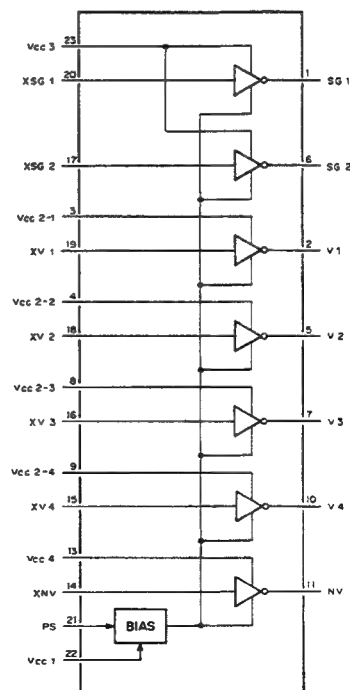




## CXA1065N (SONY) FLAT PACKAGE

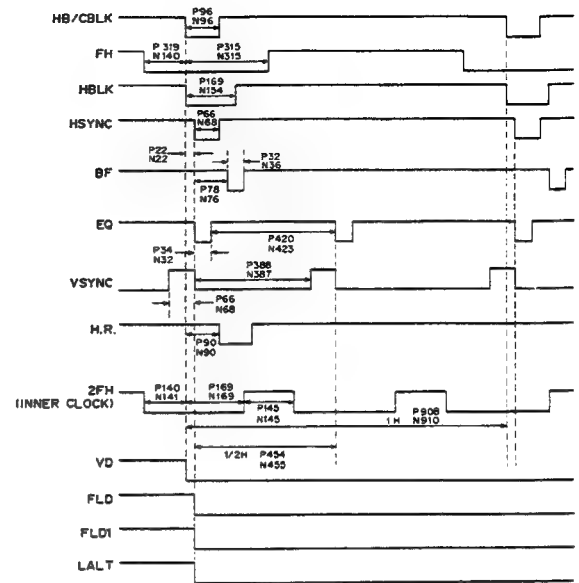
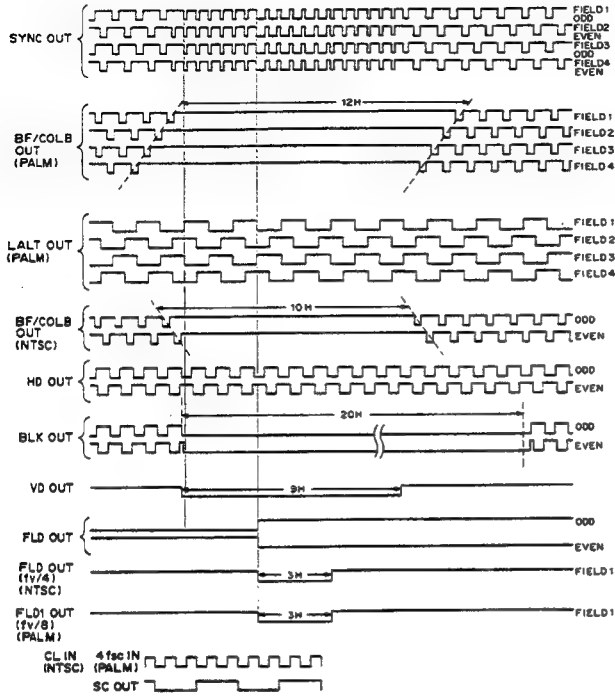
INVERTING DRIVER FOR CCD CLOCK WITH POWER SAVE  
- TOP VIEW -

XV1-XV4; VERTICAL REGISTER TRANSMISSION CLOCK INPUT  
V1-V4; VERTICAL REGISTER TRANSMISSION CLOCK OUTPUT  
XSG1, XSG2; SENSOR GATE PULSE INPUT  
SG1, SG2; SENSOR GATE PULSE OUTPUT  
XNV; DRIVER INPUT  
NV; DRIVER OUTPUT  
PS; POWER SAVE INPUT  
Vcc 1; BIAS VOLTAGE  
Vcc 2-1; V1 OUTPUT PULSE VOLTAGE  
Vcc 2-2; V2 OUTPUT PULSE VOLTAGE  
Vcc 2-3; V3 OUTPUT PULSE VOLTAGE  
Vcc 2-4; V4 OUTPUT PULSE VOLTAGE  
Vcc 3; SG1, SG2 OUTPUT PULSE VOLTAGE  
Vcc 4; NV OUTPUT PULSE VOLTAGE



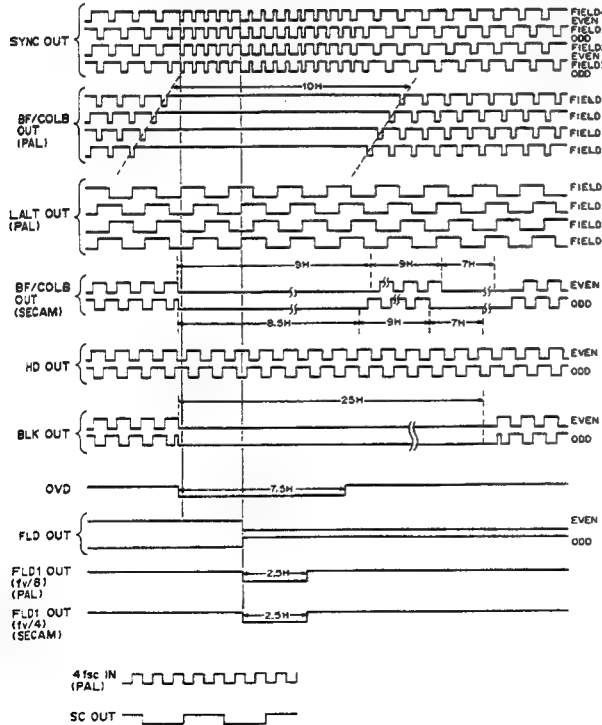


(NTSC, PALM)

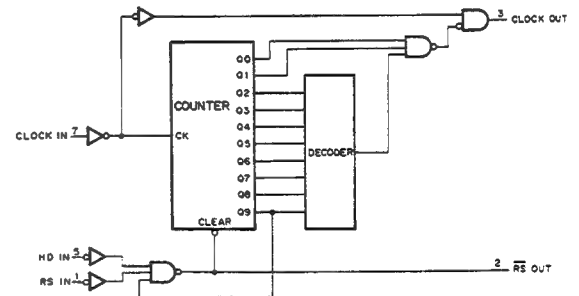
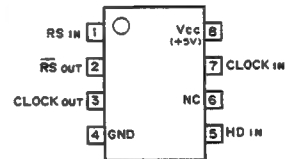


P: PAL, SECAM  
N: NTSC, PALM

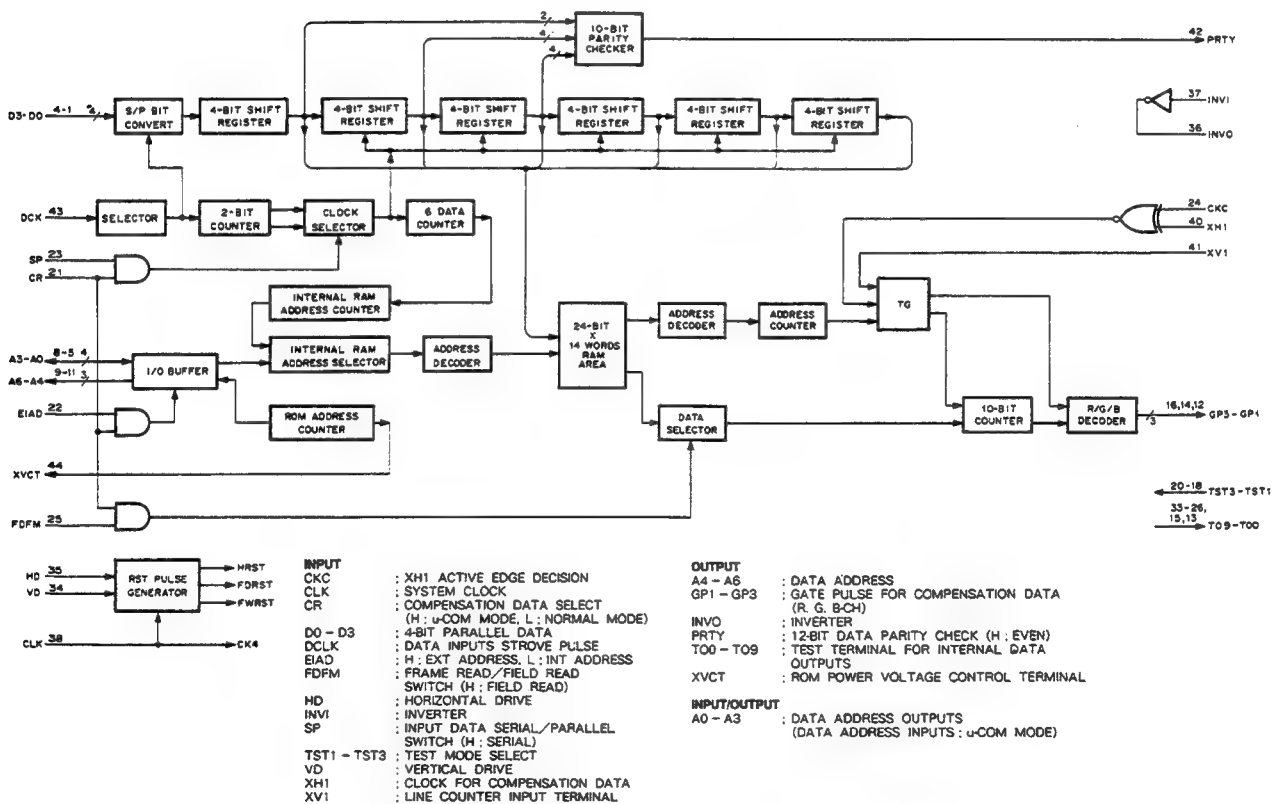
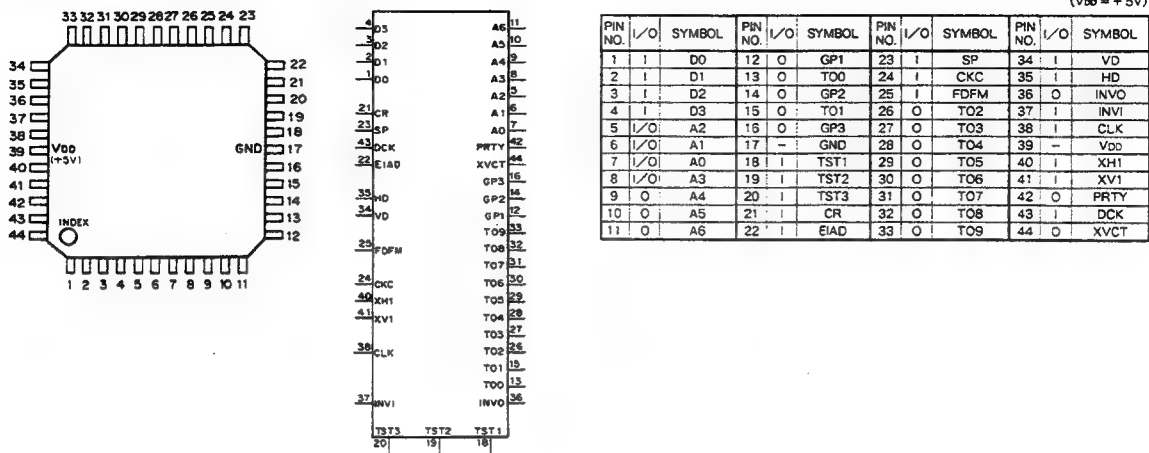
(PAL, SECAM)



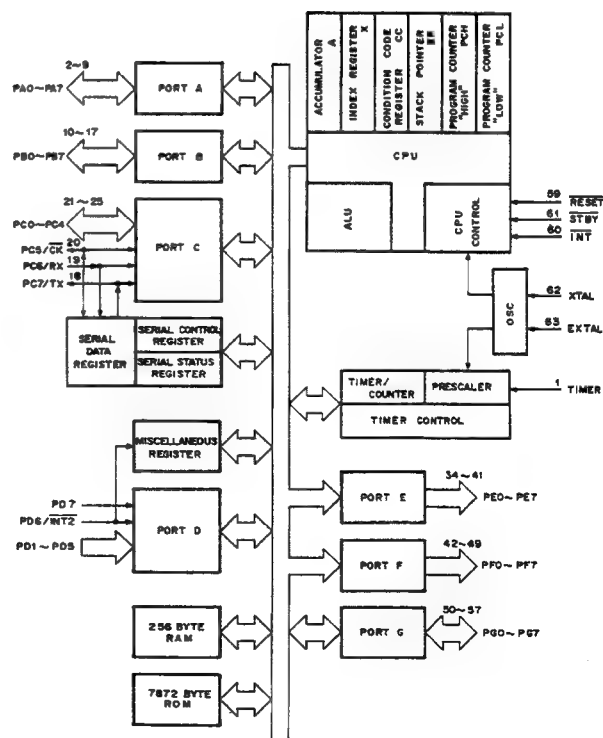
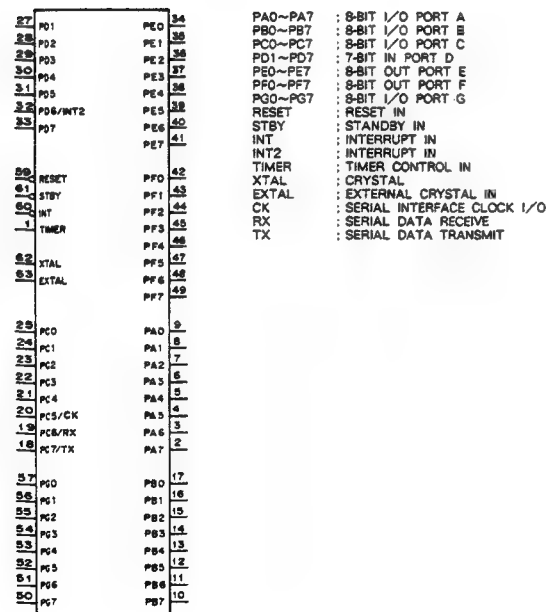
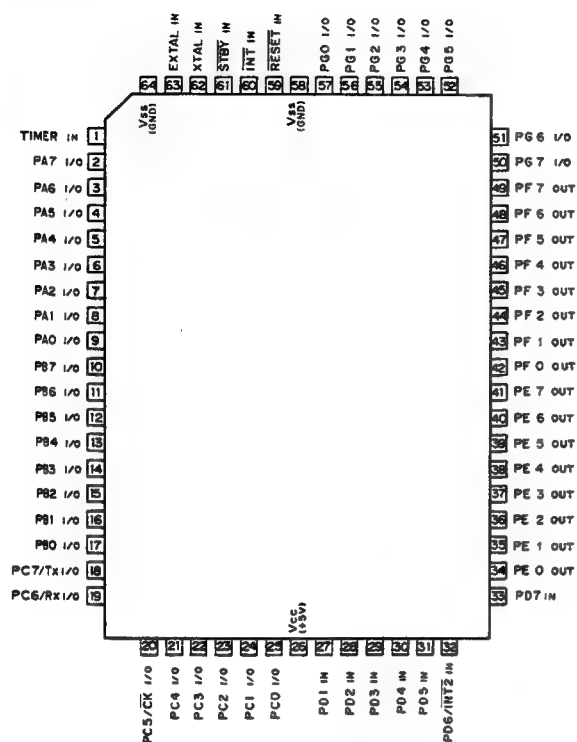
CXD1361M (TI) FLAT PACKAGE  
CLOCK CONTROLLER  
- TOP VIEW -



CXD8095Q (SONY) FLAT PACKAGE  
C-MOS GATE ARRAY  
- TOP VIEW -

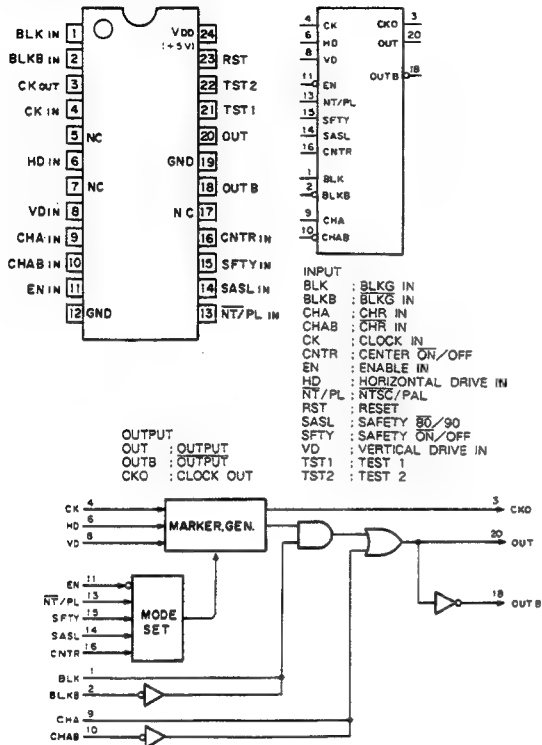


HD6305Y0E91F (HITACHI) FLAT PACKAGE  
 HD6305Y0E92F (HITACHI) FLAT PACKAGE  
 C-MOS 8-BIT MICROPROCESSOR UNIT  
 - TOP VIEW -

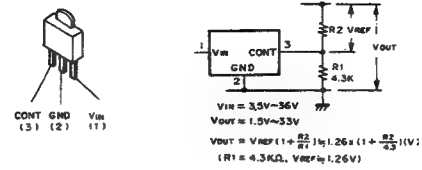




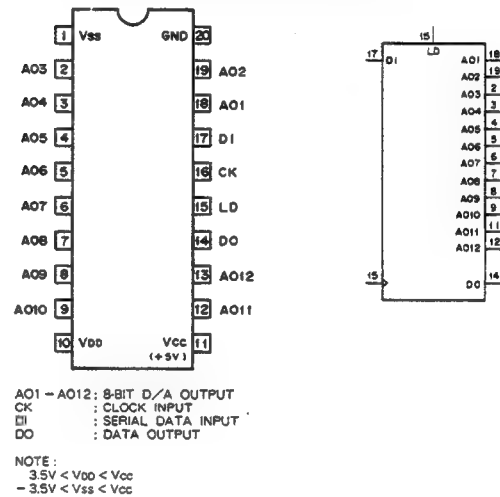
CXD8154BM (SONY)  
CMOS GATE ARRAY  
- TOP VIEW -



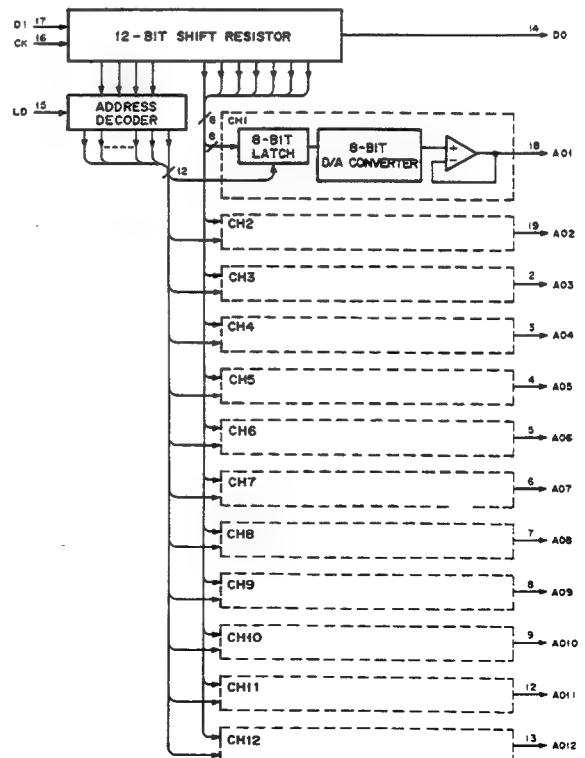
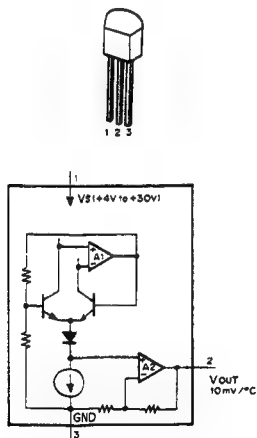
M5237ML (MITSUBISHI)  
ADJUSTABLE VOLTAGE REGULATOR



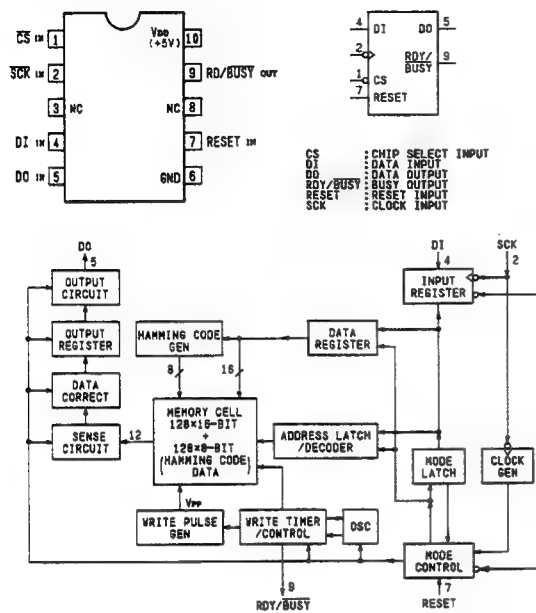
M62352GP (MITSUBISHI) FLAT PACKAGE  
CMOS 8-BITx12 CHANNEL D/A CONVERTER  
(WITH BUFFER OPERATIONAL AMPLIFIER)  
- TOP VIEW -



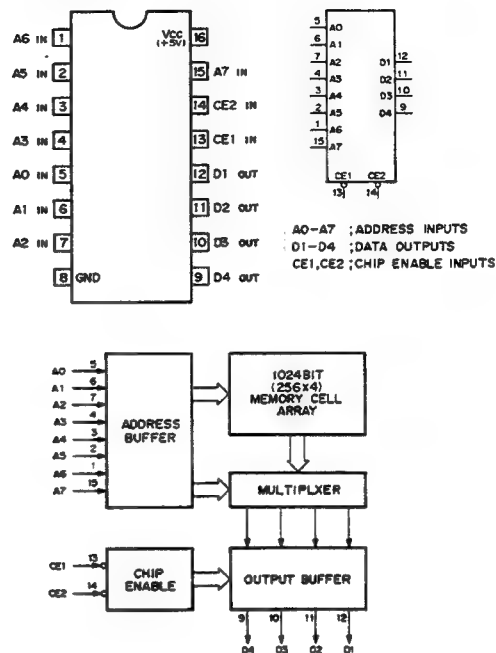
LM35DZ (NS)  
BIPOLAR TEMPERATURE SENSOR



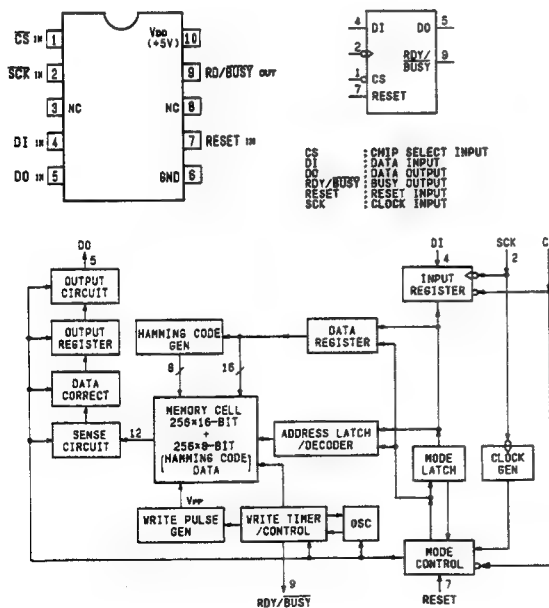
M6M80021FP (MITSUBISHI) FLAT PACKAGE  
C-MOS 2k (128x16) BIT ERASABLE PROM  
- TOP VIEW -



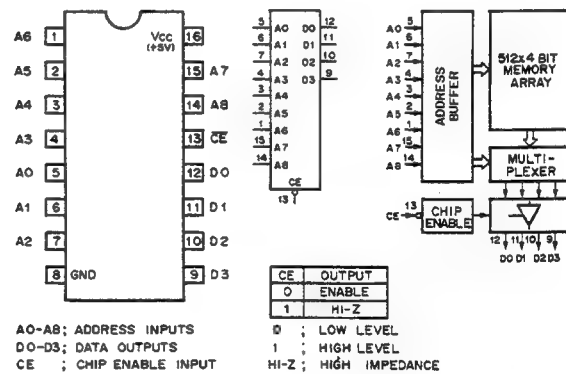
MB7114LPF (FUJITSU) (ACCESS TIME = 50ns) FLAT PACKAGE  
TTL 1024-BIT (256x4) PROM  
- TOP VIEW -



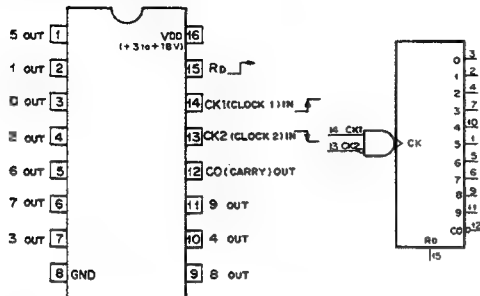
M6M80041FP (MITSUBISHI) FLAT PACKAGE  
C-MOS 4k (256x16) BIT ERASABLE PROM  
- TOP VIEW -



MB7116H (FUJITSU)  
2K (512x4) BIT PROM WITH 3-STATE OUTPUTS  
- TOP VIEW -



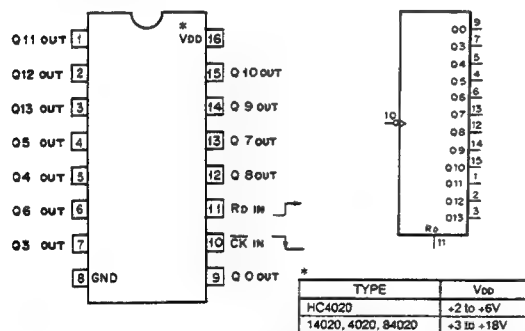
MC14017BF (MOTOROLA) FLAT PACKAGE  
C-MOS DECADE COUNTER/DIVIDER  
- TOP VIEW -



COUNT	RD	CK1	CK2	9	8	7	6	5	4	3	2	1	0	CO
0	1	X		0	0	0	0	0	0	0	0	0	1	1
0	0			0	0	0	0	0	0	0	0	0	1	1
1	0			0	0	0	0	0	0	0	0	1	0	1
2	0			0	0	0	0	0	0	1	0	0	1	
3	0			0	0	0	0	0	0	1	0	0	0	1
4	0			0	0	0	0	0	1	0	0	0	0	1
5	0			0	0	0	0	1	0	0	0	0	0	0
6	0			0	0	0	1	0	0	0	0	0	0	0
7	0			0	0	1	0	0	0	0	0	0	0	0
8	0			0	1	0	0	0	0	0	0	0	0	0
9	0			1	0	0	0	0	0	0	0	0	0	0
NO COUNT	0	1												
	0	0												NO CHANGE

0; LOW LEVEL  
1; HIGH LEVEL  
X; DON'T CARE

MC14020BF (MOTOROLA) FLAT PACKAGE  
C-MOS 14-STAG RIPPLE-CARRY BINARY COUNTER/DRIVER  
- TOP VIEW -

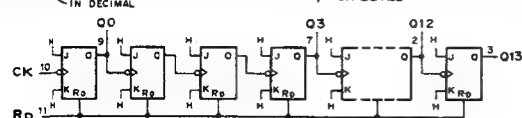


TYPE	VDD
HC4020	+2 to +6V
14020, 4020, 84020	+3 to +18V

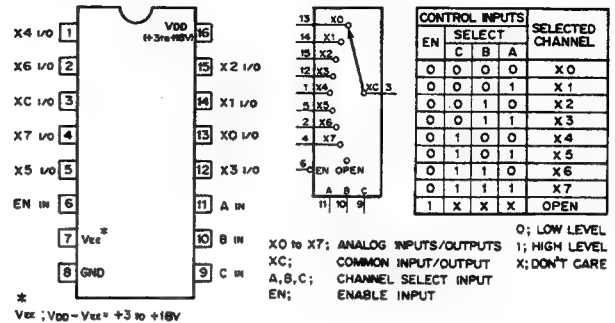
COUNT	Q13	Q12	Q11	Q10	Q9	Q8	Q7	Q6	Q5	Q4	Q3	Q0
0	0000	0	0	0	0	0	0	0	0	0	0	0
1	0001	0	0	0	0	0	0	0	0	0	0	1
2	0002	0	0	0	0	0	0	0	0	0	0	0
3	0003	0	0	0	0	0	0	0	0	0	0	1
4	0004	0	0	0	0	0	0	0	0	0	0	0
16380	4FFC	1	1	1	1	1	1	1	1	1	1	0
16381	4FFD	1	1	1	1	1	1	1	1	1	1	1
16382	4FFE	1	1	1	1	1	1	1	1	1	1	0
16383	4FFF	1	1	1	1	1	1	1	1	1	1	1

IN HEXADECIMAL  
IN DECIMAL

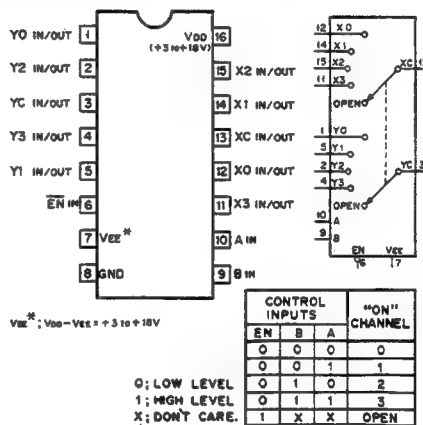
0; LOW LEVEL  
1; HIGH LEVEL



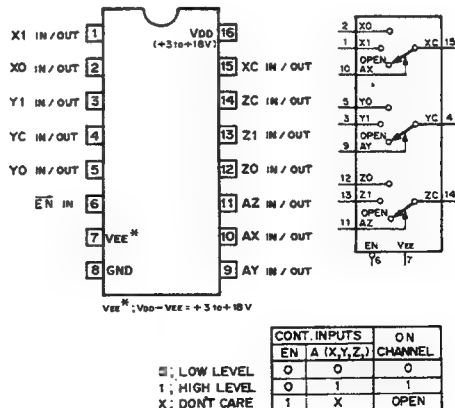
MC14051BF (MOTOROLA) FLAT PACKAGE  
C-MOS 8-CHANNEL ANALOG MULTIPLEXER/DEMULPLEXER  
- TOP VIEW -



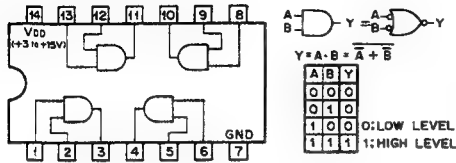
MC14052BF (MOTOROLA) FLAT PACKAGE  
C-MOS DUAL 4-CHANNEL ANALOG MULTIPLEXERS/DEMULPLEXERS  
- TOP VIEW -



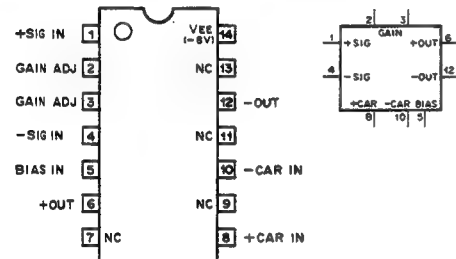
MC14053BF (MOTOROLA) FLAT PACKAGE  
TC4053BFS (TOSHIBA) FLAT PACKAGE  
C-MOS TRIPLE 2-CHANNEL ANALOG MULTIPLEXERS/DEMULPLEXERS  
- TOP VIEW -



## MC14081BF (MOTOROLA) FLAT PACKAGE

C-MOS 2-INPUT AND GATE  
- TOP VIEW -

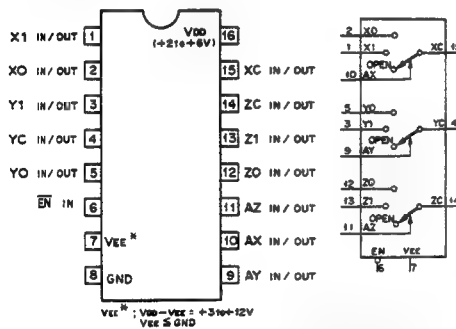
## MC1496MR (MOTOROLA) FLAT PACKAGE

BALANCED MODULATOR/DEMODULATOR  
- TOP VIEW -

## MC74HC4053F (MOTOROLA) FLAT PACKAGE

## TC74HC4053AF (TOSHIBA) FLAT PACKAGE

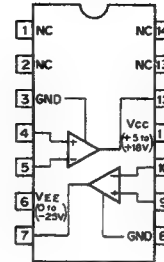
## TC74HC4053AFS (TOSHIBA) FLAT PACKAGE

C-MOS TRIPLE 2-CHANNEL ANALOG MULTIPLEXER/DEMULTIPLEXER  
- TOP VIEW -

CONT. INPUTS		ON CHANNEL
EN	A (X,Y,Z)	
0	0	0
0	1	1
1	X	OPEN

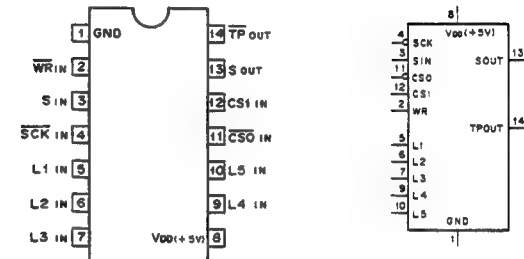
0: LOW LEVEL  
1: HIGH LEVEL  
X: DON'T CARE.

## NJM319M (JRC) FLAT PACKAGE

DUAL VOLTAGE COMPARATOR  
- TOP VIEW -

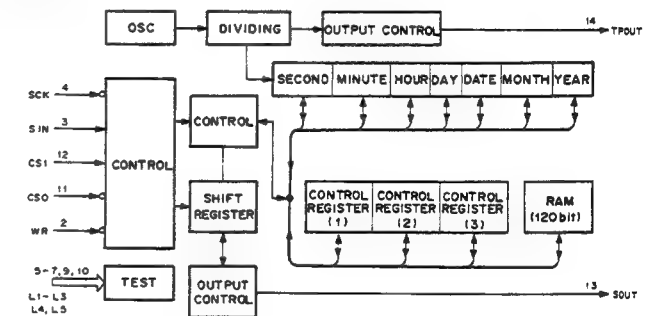
## RTC4553B (EPSON)

C-MOS REAL TIME CLOCK

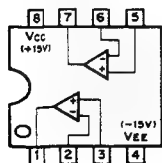


INPUT  
CS0  
CS1  
L1 - L5  
SCK  
SIN  
WR  
OUTPUT  
SOUT  
TPOUT

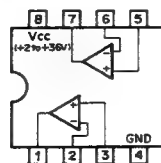
: CHIP SELECT (L: ACCESS ENABLE, H: SOUT HIGH Z)  
: POWER DOWN DETECTION  
: TEST IN  
: SERIAL SYNC SIGNAL  
: SERIAL ADDRESS/DATA  
: WRITING SELECT (L: WRITING, H: READING)  
: SERIAL ADDRESS/DATA  
: REFERENCE SIGNAL



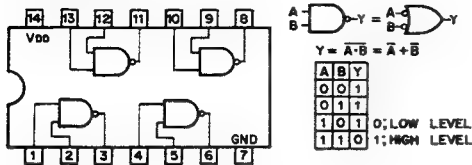
## NJM2043M-D (JRC) FLAT PACKAGE

DUAL OPERATIONAL AMPLIFIER  
- TOP VIEW -

## NJM2903M (JRC) FLAT PACKAGE

DUAL VOLTAGE COMPARATORS  
- TOP VIEW -

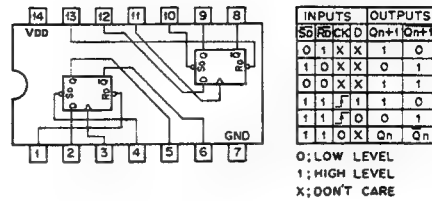
SN74HC00ANS (TI) FLAT PACKAGE  
C-MOS QUAD 2-INPUT NAND GATES  
- TOP VIEW -



NOTE:

TYPE	V <sub>DD</sub>
TC74AC00 TYPE	+2 to +5.5V
MC74HCT00N	+5V
74ACT00 TYPE	+4.5 to +5.5V
OTHER TYPES	+2 to +6V

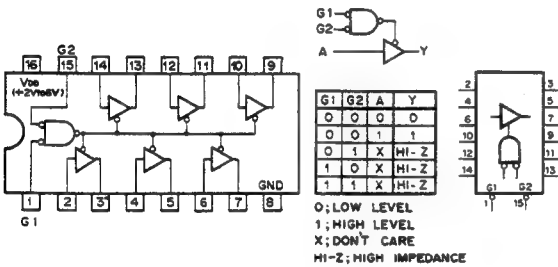
SN74HC74ANS (TI) FLAT PACKAGE  
C-MOS DUAL D-TYPE FLIP-FLOPS WITH DIRECT SET/RESET  
- TOP VIEW -



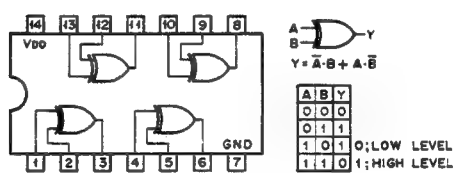
NOTE:

TYPE	V <sub>DD</sub>
TC74HCT74AF	+5V
TC74ACT74 TYPE	+2 to +5.5V
74ACT74 TYPE	+4.5 to +5.5V
OTHER TYPES	+2 to +6V

SN74HC365ANS (TI) FLAT PACKAGE  
C-MOS 3-STATE BUS DRIVER  
- TOP VIEW -



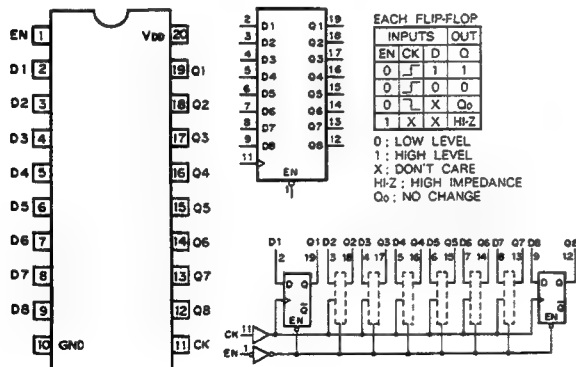
SN74HC86ANS (TI) FLAT PACKAGE  
C-MOS QUAD EXCLUSIVE OR GATES  
- TOP VIEW -



NOTE:

TYPE	V <sub>DD</sub>
TC74AC86 TYPE	+2 to +5.5V
OTHER TYPES	+2 to +6V

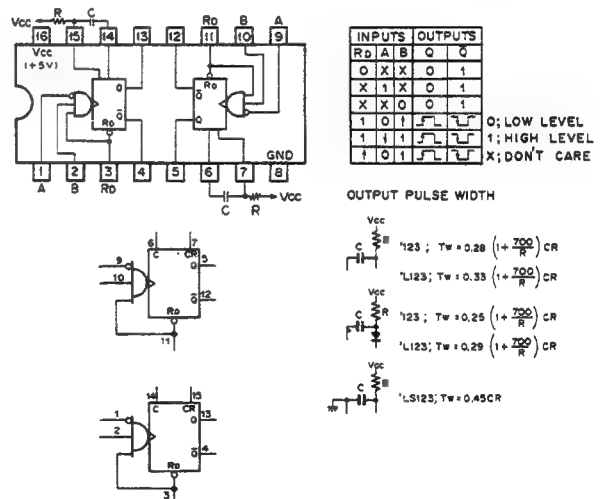
SN74HC574ANS (TI) FLAT PACKAGE  
C-MOS 3-STATE D-TYPE EDGE-TRIGGERED FLIP-FLOP  
- TOP VIEW -



NOTE:

TYPE	V <sub>DD</sub>
74AC/74HC	+2 to +6V
74ACT/74HCT	+5V
TC74AC574F/74VHC	+2 to +5.5V

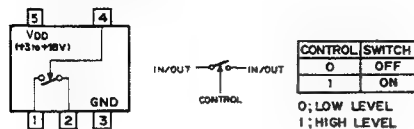
SN74LS123NS (TI) FLAT PACKAGE  
TTL RETRIGGERABLE MONOSTABLE MULTIVIBRATOR WITH DIRECT RESET  
- TOP VIEW -



## TC4S66F (TOSHIBA)

C-MOS BILATERAL ANALOG SWITCH

- TOP VIEW -

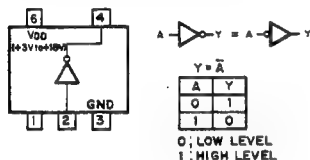


## TC4S69F (TOSHIBA) FLAT PACKAGE

TC4SU69F (TOSHIBA) FLAT PACKAGE

C-MOS INVERTER BUFFER

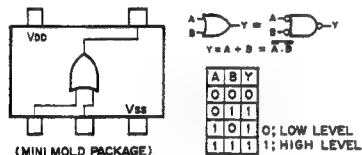
- TOP VIEW -



## TC4S71F (TOSHIBA) FLAT PACKAGE

C-MOS 2-INPUT OR GATE

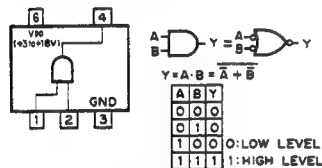
- TOP VIEW -



## TC4S81F (TOSHIBA) FLAT PACKAGE

C-MOS 2-INPUT AND GATE

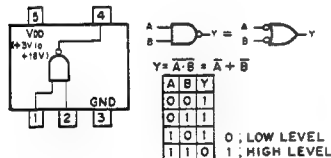
- TOP VIEW -



## TC4SU11F (TOSHIBA) FLAT PACKAGE

C-MOS 2-INPUT NAND GATE

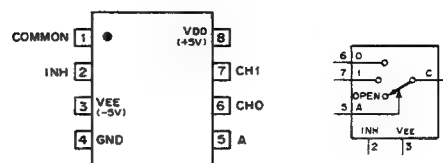
- TOP VIEW -



## TC4W53F (TOSHIBA) FLAT PACKAGE

C-MOS 2-CHANNEL MULTIPLEXER/DEMULTIPLEXER

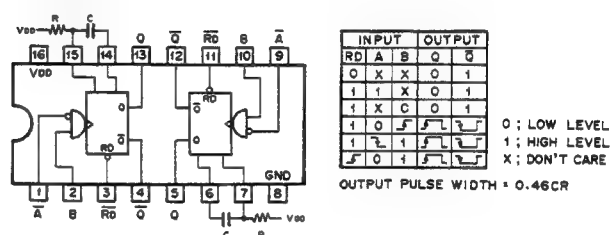
- TOP VIEW -



## TC74HC123AF (TOSHIBA) FLAT PACKAGE

C-MOS DUAL RETRIGGERABLE MONOSTABLE MULTIVIBRATORS

- TOP VIEW -



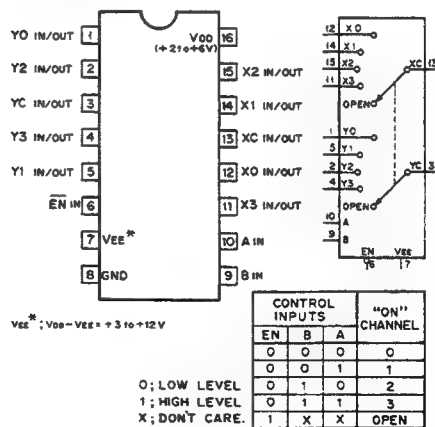
NOTE:

TYPE	VDD
TC74HCT123AF	+5V
OTHER TYPES	+2 to +6V

## TC74HC4052AFS (TOSHIBA) FLAT PACKAGE

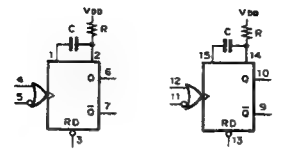
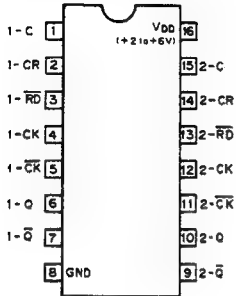
C-MOS DUAL 4-CHANNEL ANALOG MULTIPLEXER/DEMULTIPLEXER

- TOP VIEW -

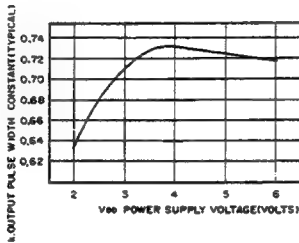


TC74HC4538AF (TOSHIBA) FLAT PACKAGE

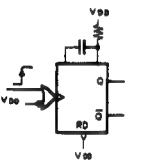
C-MOS DUAL RETRIGGERABLE / NON - RETRIGGERABLE MONOSTABLE MULTIVIBRATOR  
- TOP VIEW -



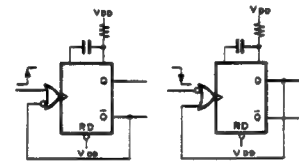
$$\text{OUTPUT PULSE WIDTH} = k \cdot C \cdot R$$



RETRIGGERABLE M.M.V

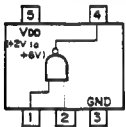


NON-RETRIGGERABLE M.M.V



TC7S00F (TOSHIBA) FLAT PACKAGE

C-MOS 2-INPUT NAND GATE  
- TOP VIEW -



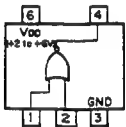
$$Y = A \cdot B = \overline{A + B}$$

A	B	Y
0	0	1
0	1	1
1	0	1
1	1	0

0; LOW LEVEL  
1; HIGH LEVEL

TC7S02F (TOSHIBA) FLAT PACKAGE

C-MOS 2-INPUT NOR GATE  
- TOP VIEW -



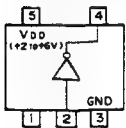
$$Y = A + B = \overline{A \cdot B}$$

A	B	Y
0	0	0
0	1	1
1	0	1
1	1	0

0; LOW LEVEL  
1; HIGH LEVEL

TC7S04F (TOSHIBA) FLAT PACKAGE

C-MOS INVERTER  
- TOP VIEW -



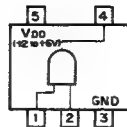
$$Y = \overline{A}$$

A	Y
0	1
1	0

0; LOW LEVEL  
1; HIGH LEVEL

TC7S08F (TOSHIBA) FLAT PACKAGE

C-MOS 2-INPUT AND GATE  
- TOP VIEW -



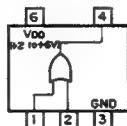
$$Y = A \cdot B = \overline{A + B}$$

A	B	Y
0	0	0
0	1	0
1	0	0
1	1	1

0; LOW LEVEL  
1; HIGH LEVEL

TC7S32F (TOSHIBA) FLAT PACKAGE

C-MOS 2-INPUT OR GATE  
- TOP VIEW -



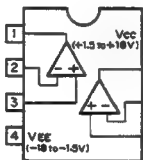
$$Y = A + B = \overline{A \cdot B}$$

A	B	Y
0	0	0
0	1	1
1	0	1
1	1	1

0; LOW LEVEL  
1; HIGH LEVEL

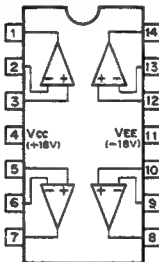
TL062CPS (TI) FLAT PACKAGE

OPERATIONAL AMPLIFIER (JFET INPUT)  
- TOP VIEW -

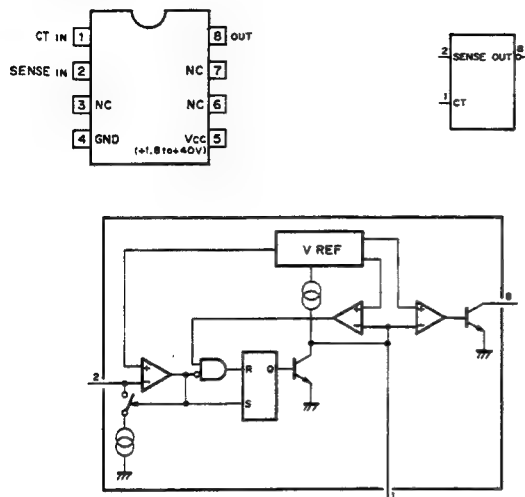


TL064CNS (TI) FLAT PACKAGE

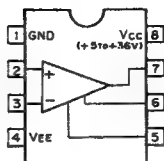
TL064CPW (TI)  
OPERATIONAL AMPLIFIER (J FET-INPUT)  
- TOP VIEW -



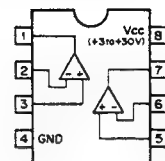
TL7700CPS (TI) FLAT PACKAGE  
VARIABLE SUPPLY VOLTAGE SUPERVISOR  
- TOP VIEW -



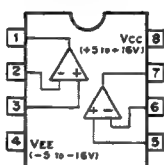
UPC311G2 (NEC) FLAT PACKAGE  
VOLTAGE COMPARATOR  
- TOP VIEW -



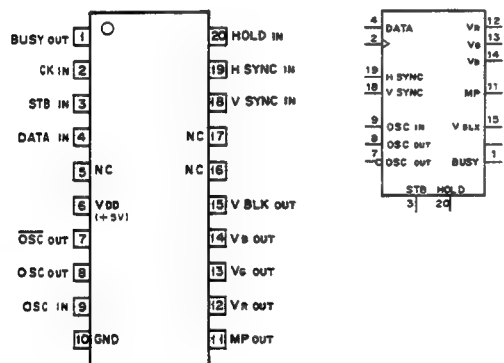
UPC358G2 (NEC) FLAT PACKAGE  
DUAL OPERATIONAL AMPLIFIERS  
- TOP VIEW -



UPC812G2 (NEC) FLAT PACKAGE  
OPERATIONAL AMPLIFIER (JFET INPUT)  
- TOP VIEW -

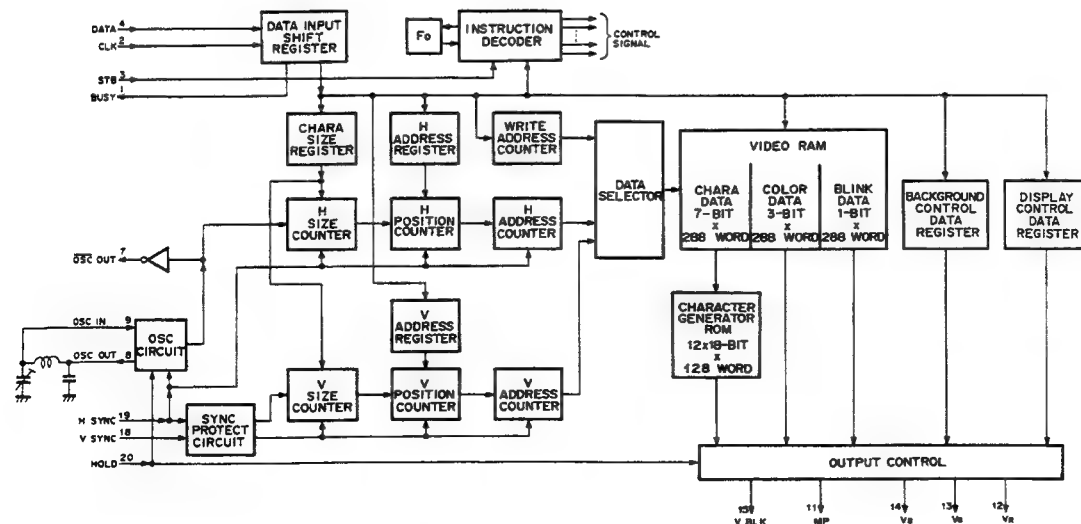


UPD6451AGT (NEC) FLAT PACKAGE  
CMOS CHARACTER DISPLAY CONTROLLER  
- TOP VIEW -



INPUT  
CK : CLOCK  
DATA : CONTROL DATA  
HOLD : SYSTEM DISABLE  
H SYNC : HORIZONTAL SYNC  
OSC IN : OSCILLATOR  
STB : STROBE  
V SYNC : VERTICAL SYNC

OUTPUT  
BUSY : BUSY  
MP : MASK PULSE  
OSC OUT : OSCILLATOR  
OSC OUT : OSCILLATOR  
V BLK : VERTICAL BLANKING  
V<sub>B</sub>, V<sub>C</sub>, V<sub>R</sub> : B. G. R. CHARACTER DATA

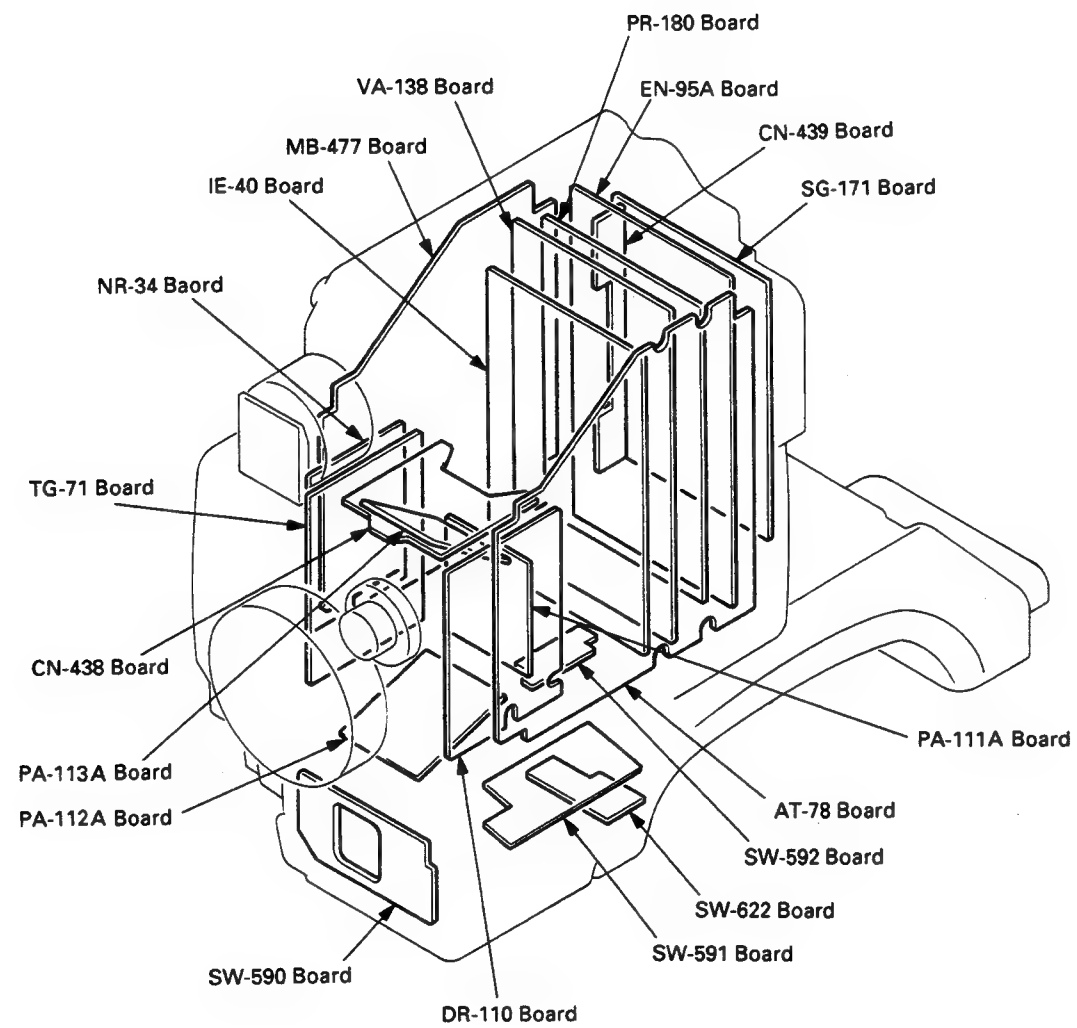




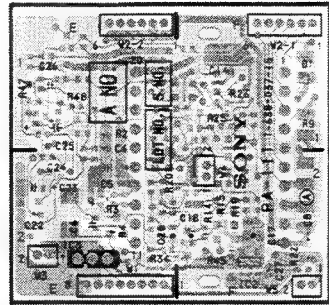


# SECTION C

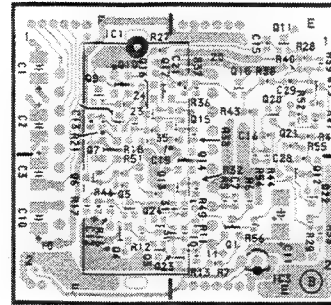
## SCHEMATIC DIAGRAMS AND BOARD ILLUSTRATIONS



## PA-111A BOARD

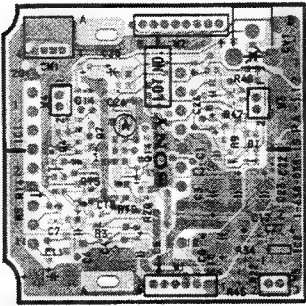


1-638-037-15 COMPONENT SIDE

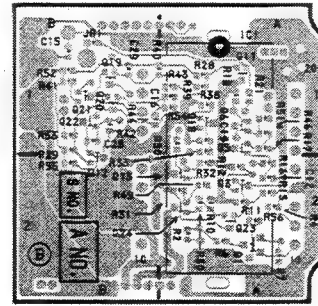


1-638-037-15 SOLDERING SIDE

## PA-112A BOARD

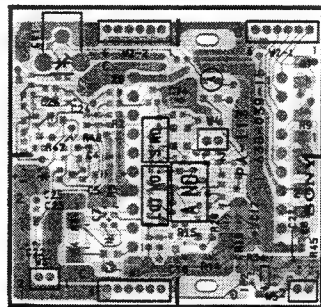


1-638-038-15 COMPONENT SIDE

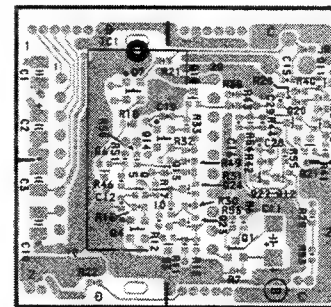


1-638-038-15 SOLDERING SIDE

## PA-113A BOARD

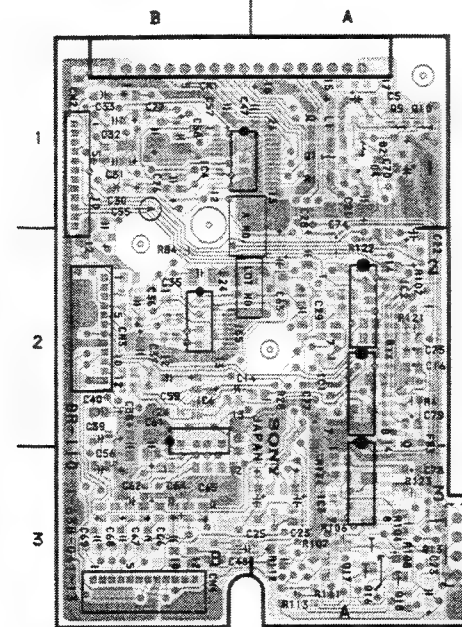


1-638-039-15 COMPONENT SIDE

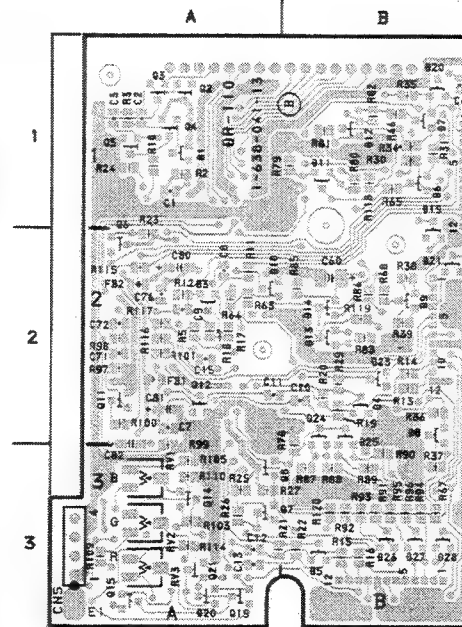


1-638-039-15 SOLDERING SIDE

## DR-110 BOARD



1-638-041-13 COMPONENT SIDE



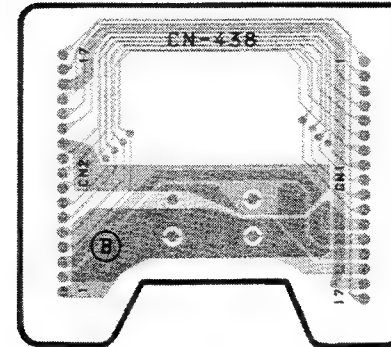
1-638-041-13 SOLDERING SIDE

### DR-110(1-638-041-13)

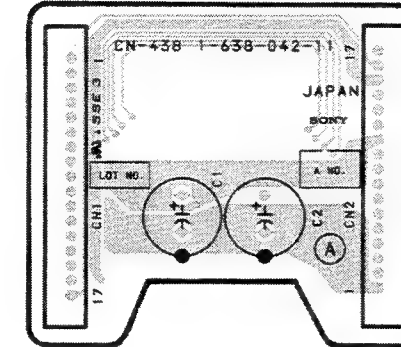
CN1	B-1	L1	A-1
CN2	B-1		
CN3	B-2	Q1	A-1
CN4	B-3	*Q2	A-1
*CN5	A-3	*Q3	A-1
		*Q4	A-1
*D1	A-1	*Q5	A-1
D2	A-1	*Q6	A-1
*D3	A-2	*Q7	B-3
*D4	B-2	*Q8	B-3
*D5	B-3	Q9	A-1
*D6	B-1	Q10	A-1
*D7	B-1	*Q11	A-2
*D8	B-2	*Q12	A-2
*D9	B-2	Q13	A-3
*D10	A-2	*Q14	A-3
*D11	B-1	*Q15	A-3
*D12	B-1	Q16	A-3
*D13	B-2	Q17	A-3
*D14	B-2	Q18	A-3
*D19	B-1	*Q19	A-3
*D20	B-1	*Q20	A-3
*D21	B-2	*Q21	A-3
*D23	B-2		
*D24	B-2	*RV1	A-3
*D25	B-2	*RV2	A-3
*D26	B-3	*RV3	A-3
*D27	B-3		
*D28	B-3		
*E1	A-3		
*FB1	A-2		
*FB2	A-2		
FB3	A-2		
IC1	A-2		
IC2	A-2		
IC3	A-3		
IC4	B-1		
IC5	B-2		
IC6	B-2		

\*;SOLDERING SIDE

## CN-438 BOARD



1-638-042-11 COMPONENT SIDE



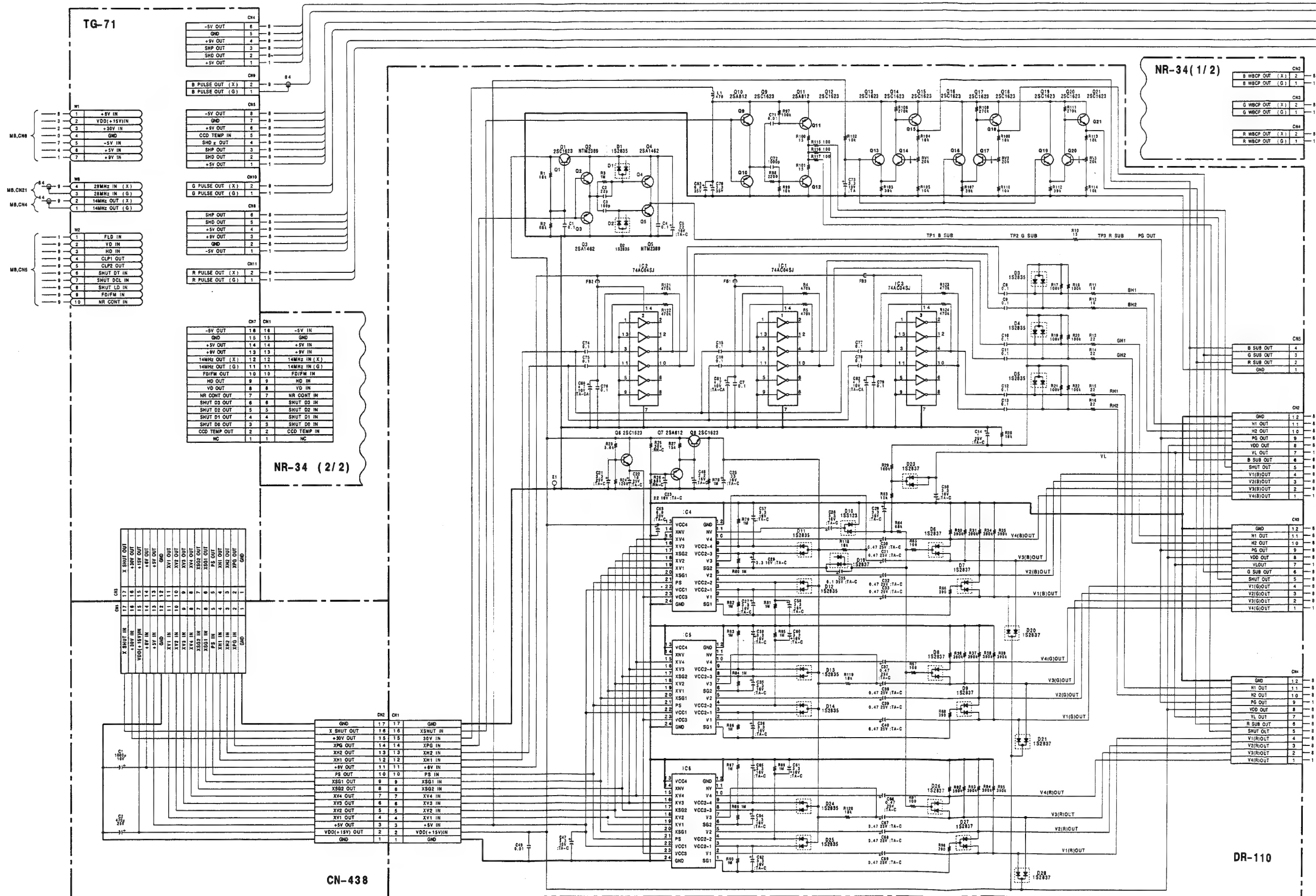
1-638-042-11 SOLDERING SIDE

TG-71, PA-111A, 112A, 113A  
NR-34, DR-110, CN-438 CCD BLOCK

CCD BLOCK TG-71, PA-111A, 112A, 113A  
NR-34, DR-110, CN-438

# CCD BLOCK

TG-71 BOARD  
PA-111A BOARD  
PA-112A BOARD  
PA-113A BOARD  
NR-34 BOARD  
DR-110 BOARD  
CN-438 BOARD



DXC-537A (J,UC)  
DXC-537AP(EK)

C-3

C-3

A

B

C

D

E

F

G

H

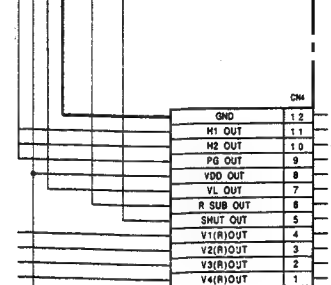
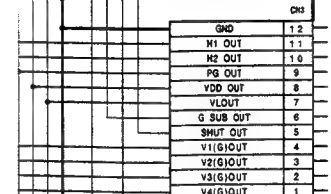
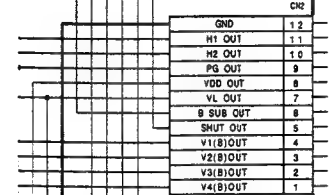
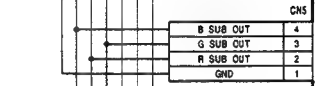
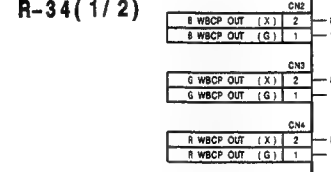
I

DR-110

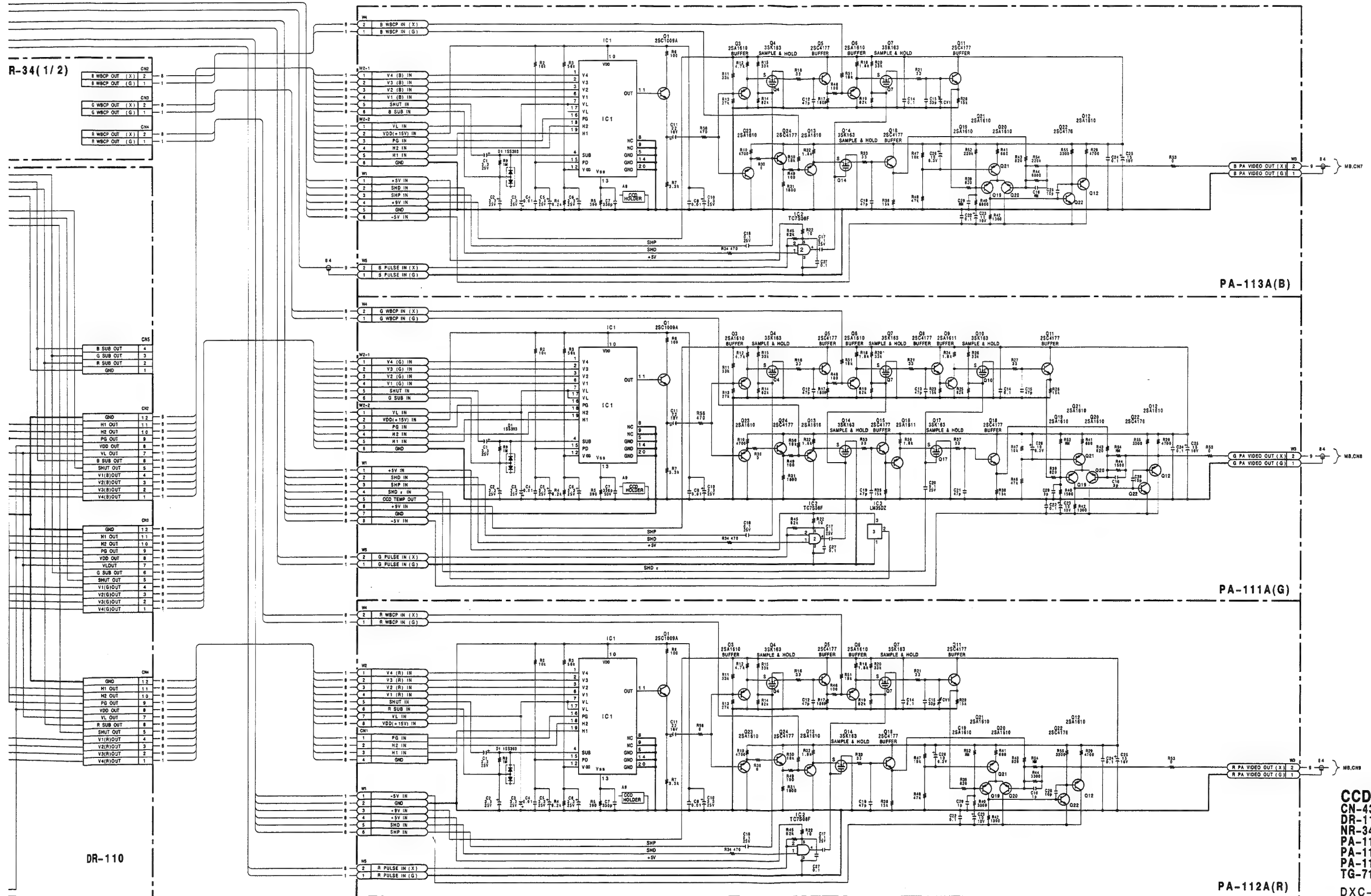
TG-71,PA-111A,112A,113A  
NR-34,DR-110,CN-438 CCD BLOCK

CCD BLOCK TG-71,PA-111A,112A,113A  
NR-34,DR-110,CN-438

R-34(1/2)



DR-110



PA-113A(B)

PA-111A(G)

PA-112A(R)

CCD BLOCK FRAME  
CN-438 BOARD  
DR-110 BOARD  
NR-34 BOARD  
PA-111A BOARD  
PA-112A BOARD  
PA-113A BOARD  
TG-71 BOARD

DXC-537A(J)  
DXC-537A(UC)  
DXC-537A(EK)  
R-7 DXC537A-CORRECTION

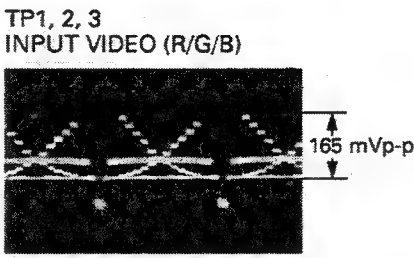
VA-138 Board

- 注意：
- 1. DC電圧はデジタル電圧計による値。
  - 2. 波形写真、及びDC電圧は下記条件での測定。

- 本機にCA-537を接続する。
- オートホワイトバランスをとった後にグレースケールチャートを撮像し、波形モニターにて、ビデオ出力の白レベルが100 IREになる様にレンズ絞りをセットする。
- SWITCH POSITION
  - OUTPUT : CAM(DCC OFF) • CLOCK : OFF
  - GAIN : 0dB • EVS : OFF
  - WHITE BAL : A • TURBO GAIN : OFF
  - SHUTTER : OFF • MATRIX : OFF
  - ZEBRA MARKER : OFF • ATW : OFF
  - PHASE : 0° • A IRIS MODE : STD

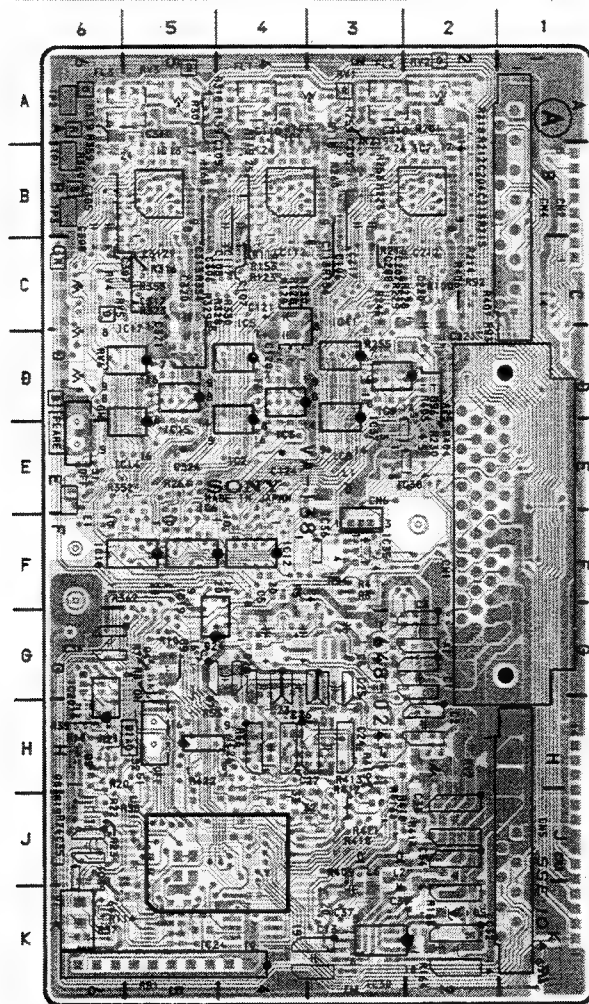
- NOTE:
- 1. All voltage are DC mesured with a digital voltmeter.
  - 2. All waveforms are taken and DC voltage is measured in condition below.

- Connect the camera adapter CA-537/537P to the camera.
- After the auto white balance adjustment is complete, shooting the grayscale chart, adjust the lens iris so that a white level is 100 IRE (700 mV) on the waveform monitor.
- SWITCH POSITION
  - OUTPUT : CAM(DCC OFF) • CLOCK : OFF
  - GAIN : 0dB • EVS : OFF
  - WHITE BAL : A • TURBO GAIN : OFF
  - SHUTTER : OFF • MATRIX : OFF
  - ZEBRA MARKER : OFF • ATW : OFF
  - PHASE : 0° • A IRIS MODE : STD

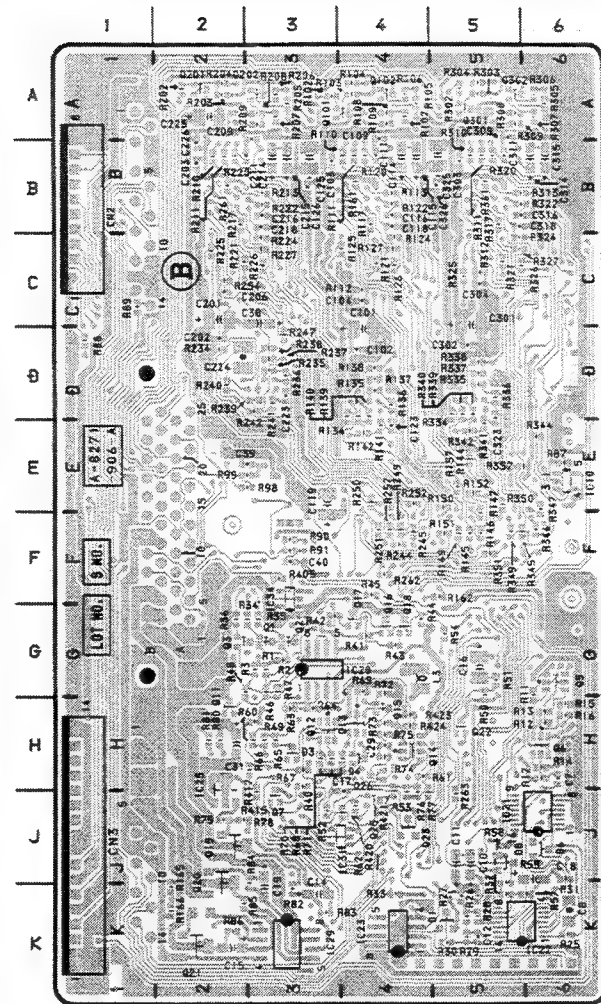




SERIAL No. 10001-10293 (UC)  
30001-30281 (J)  
40001-40481 (EK)



1-648-024-11 COMPONENT SIDE



1-648-024-11 SOLDERING SIDE

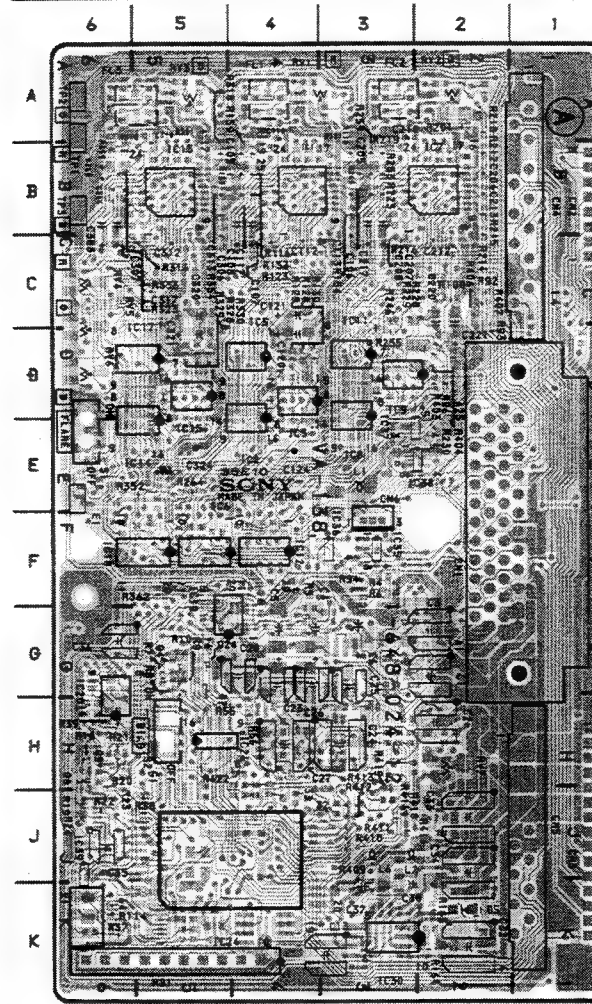
## VA-138(1-648-024-11)

*D1	K-5	IC11	C-3	IC38	E-2	*Q17	G-4	RV2	A-2
*D3	H-3	IC12	F-4	IC39	J-6	*Q18	G-4	RV3	A-5
*D4	H-4	IC13	B-5			*Q19	J-2	RV4	C-6
D5	K-2	IC14	E-5	L1	E-3	*Q20	K-2	RV5	C-6
*D6	J-6	IC15	E-5	L2	J-3	*Q21	K-2	RV6	D-6
D7	H-5	IC17	D-5	*L3	G-5	*Q22	H-5	RV7	H-2
*D8	J-5	IC18	F-6	L6	J-3	*Q23	J-4		
		IC19	F-5			Q24	G-5	S1	E-5
E1	F-6	IC20	G-6	*Q1	G-3	*Q25	J-4	S2	H-5
		*IC21	J-5	*Q2	G-3	*Q26	H-4		
FL1	A-4	*IC22	K-6	*Q3	G-2			TP1	B-6
FL2	A-3	*IC23	K-4	Q4	G-5	*Q101	A-3	TP2	A-6
FL3	A-6	IC24	K-5	*Q5	G-6	*Q102	A-4	TP3	B-6
		*IC25	H-2	*Q6	H-6				
IC1	A-4	IC26	H-4	*Q7	J-3	*Q201	A-2	X1	K-6
IC2	E-4	*IC28	G-4	Q8	H-6	*Q202	A-3		
IC3	E-4	*IC29	K-3	Q9	H-6				
IC5	C-4	IC30	K-3	*Q11	H-2	*Q301	A-5		
IC6	E-5	*IC31	J-4	*Q12	H-3	*Q302	A-5		
IC7	B-2	*IC34	G-3	*Q13	H-4				
IC8	E-3	IC35	F-3	*Q14	H-5	RB1	K-5		
IC9	D-3	IC36	F-3	*Q15	H-4				
*IC10	E-6	IC37	E-3	*Q16	G-4	RV1	A-3		

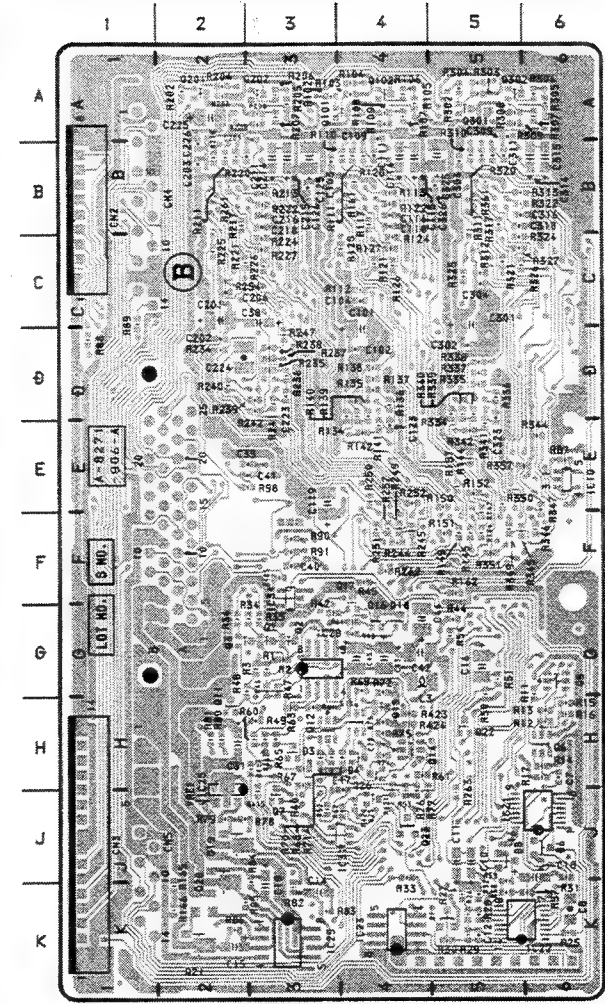
\*:SOLDERING SIDE

C-4

SERIAL No. 10351 and higher (UC)  
30301 and higher (J)  
40501 and higher (EK)



1-648-024-12 COMPONENT SIDE



1-648-024-12 SOLDERING SIDE

## VA-138(1-648-024-12)

*D1	K-5	IC11	C-3	IC38	E-2	*Q17	G-4	RV2	A-2
*D3	H-3	IC12	F-4	IC39	J-6	*Q18	G-4	RV3	A-5
*D4	H-4	IC13	B-5			*Q19	J-2	RV4	C-6
D5	K-2	IC14	E-5	L1	E-3	*Q20	K-2	RV5	C-6
*D6	J-6	IC15	E-5	L2	J-3	*Q21	K-2	RV6	D-6
D7	H-5	IC17	D-5	*L3	G-5	*Q22	H-5	RV7	H-2
*D8	J-5	IC18	F-6	L6	J-3	*Q23	J-4		
		IC19	F-5			Q24	G-5	S1	E-5
E1	F-6	IC20	G-6	*Q1	G-3	*Q25	J-4	S2	H-5
		*IC21	J-5	*Q2	G-3	*Q26	H-4		
FL1	A-4	*IC22	K-6	*Q3	G-2			TP1	B-6
FL2	A-3	*IC23	K-4	Q4	G-5	*Q101	A-3	TP2	A-6
FL3	A-6	IC24	K-5	*Q5	G-6	*Q102	A-4	TP3	B-6
		*IC25	H-2	*Q6	H-6				
IC1	A-4	IC26	H-4	*Q7	J-3	*Q201	A-2	X1	K-6
IC2	E-4	*IC28	G-4	Q8	H-6	*Q202	A-3		
IC3	E-4	*IC29	K-3	Q9	H-6				
IC5	C-4	IC30	K-3	*Q11	H-2	*Q301	A-5		
IC6	E-5	*IC31	J-4	*Q12	H-3	*Q302	A-5		
IC7	B-2	*IC34	G-3	*Q13	H-4				
IC8	E-3	IC35	F-3	*Q14	H-5	RB1	K-5		
IC9	D-3	IC36	F-3	*Q15	H-4				
*IC10	E-6	IC37	E-3	*Q16	G-4	RV1	A-3		

\*:SOLDERING SIDE

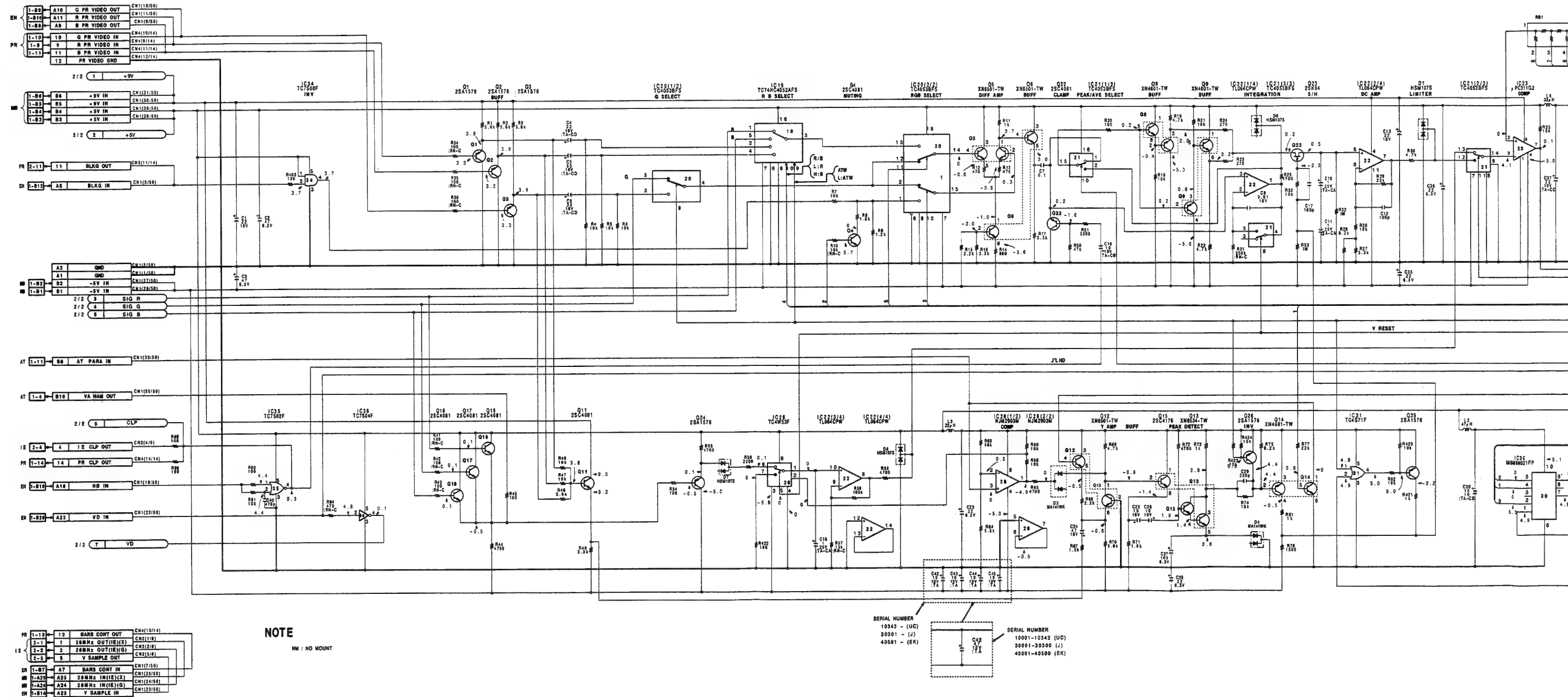
C-4

DXC-537A (J,UC)  
DXC-537AP(EK)

VA-138(1/2)

VA-138(1/2)

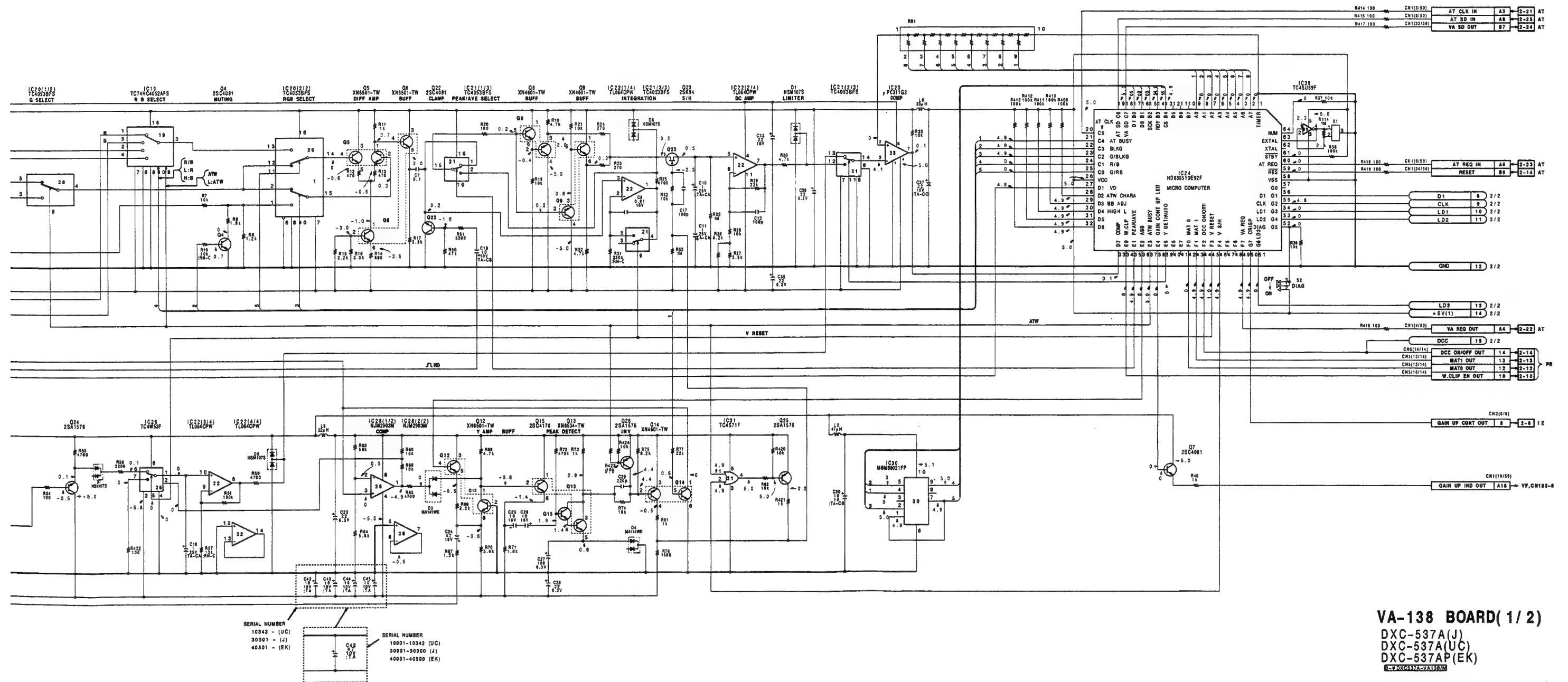
## VA-138(1/2)BOARD

DXC-537A (J,UC)  
DXC-537AP(EK)

C-5

C-5



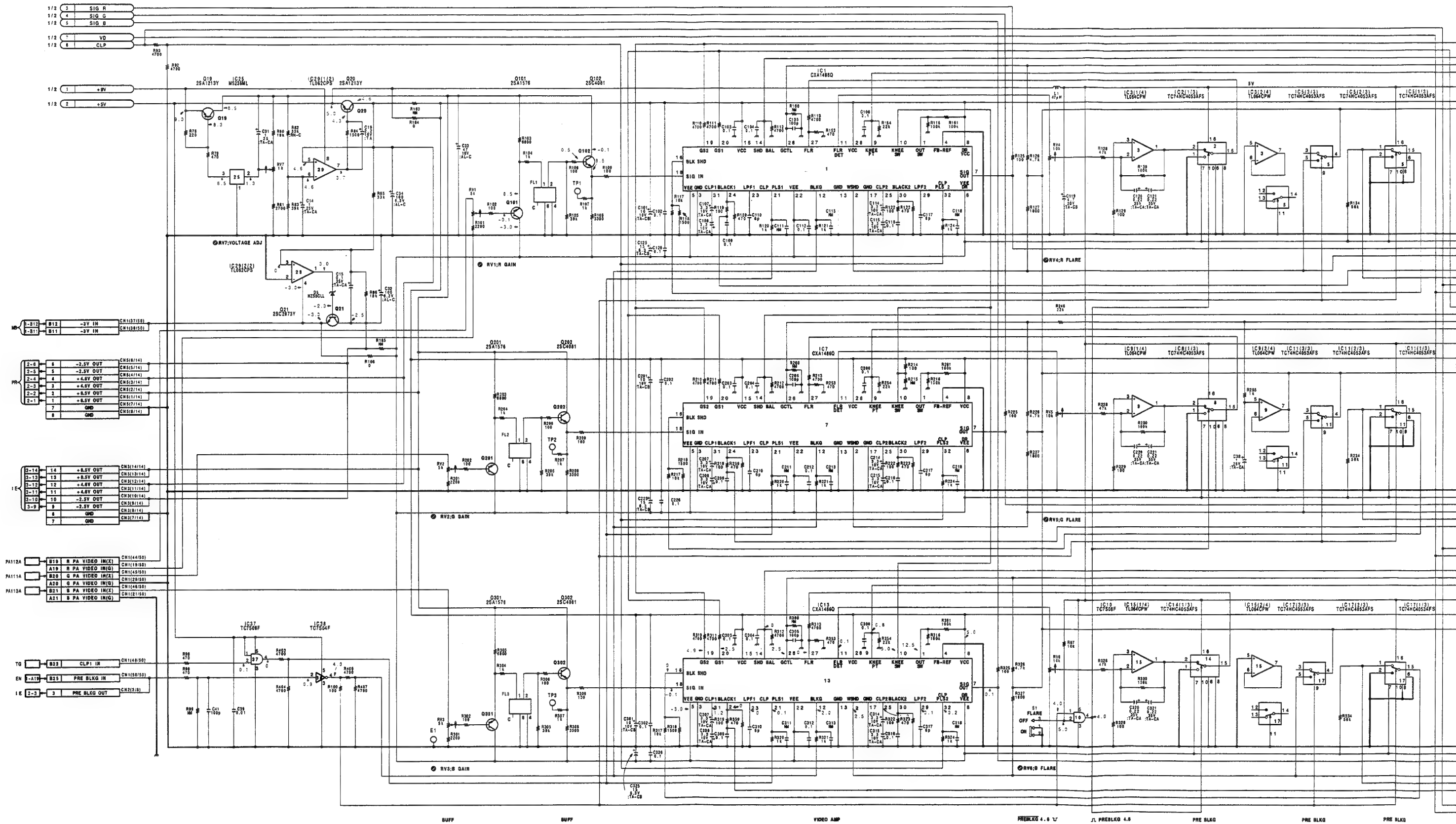


VA-138 BOARD(1/2)

DXC-537A(J)  
 DXC-537A(UC)  
 DXC-537AP(EK)

DXC-537A-VA138

**VA-138(2/2)BOARD**

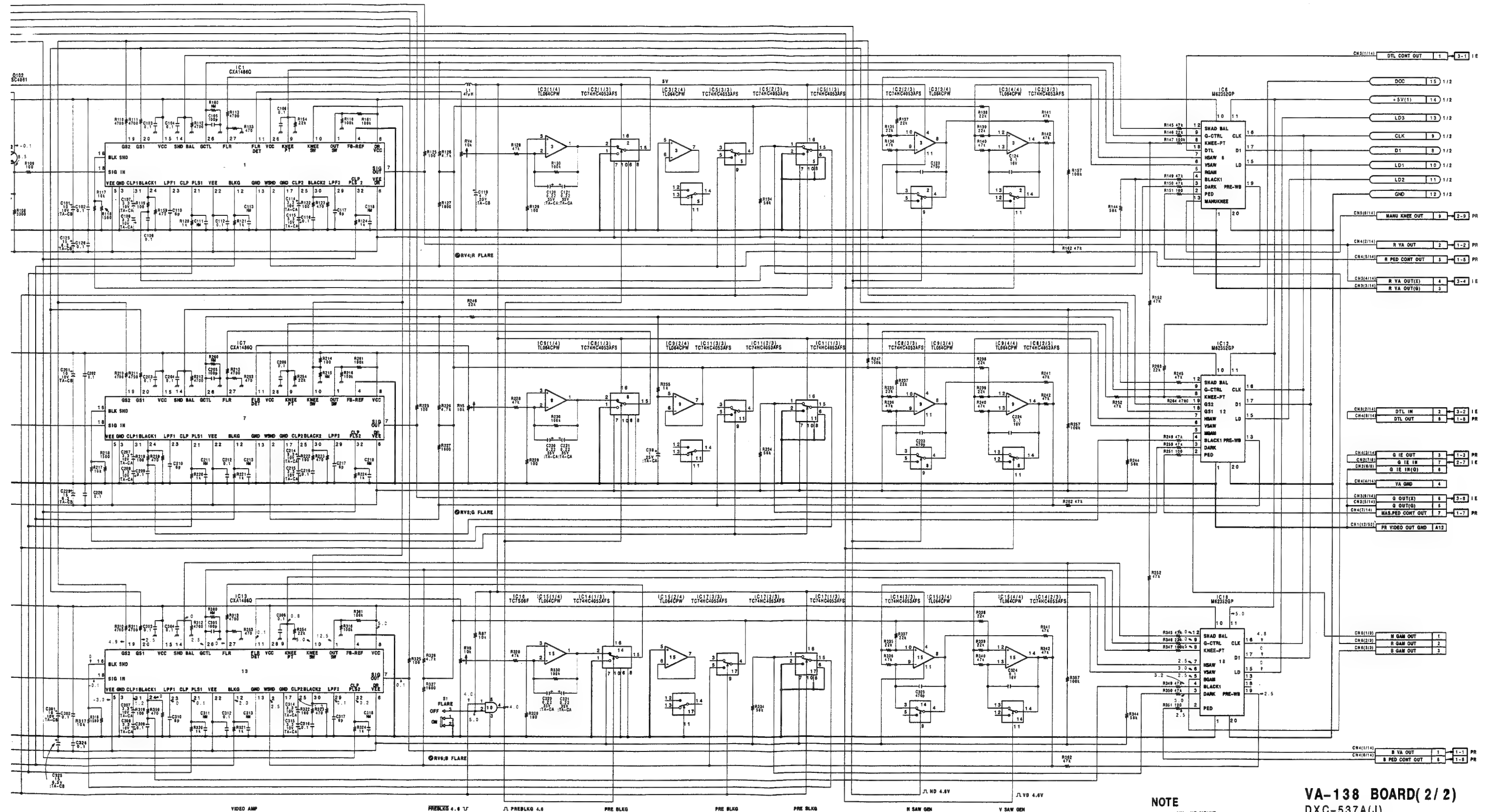


DXC-537A (J, U C)  
DXC-537AP(E K)

**C-7**

C-7

A	B	C	D	E	F	G	H
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**NOTE**

NM : NO MOUNT

**VA-138 BOARD( 2 / 2)**

DXC-537A(J)  
DXC-537A(UC)  
DXC-537AP(EK)

DXO-557A1

PR-180 Board

注意：

- 1. DC電圧はデジタル電圧計による値。
- 2. 波形写真、及びDC電圧は下記条件での測定。

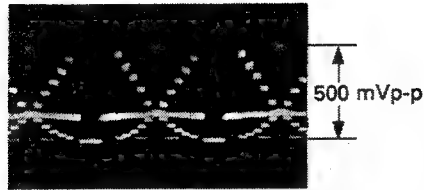
- 本機にCA-537を接続する。
- オートホワイトバランスをとった後にグレースケールチャートを撮像し、波形モニターにて、ビデオ出力の白レベルが100 IREになる様にレンズ絞りをセットする。
- SWITCH POSITION
  - OUTPUT : CAM(DCC OFF) • CLOCK : OFF
  - GAIN : 0dB • EVS : OFF
  - WHITE BAL : A • TURBO GAIN : OFF
  - SHUTTER : OFF • MATRIX : OFF
  - ZEBRA MARKER : OFF • ATW : OFF
  - PHASE : 0° • A IRIS MODE : STD

NOTE:

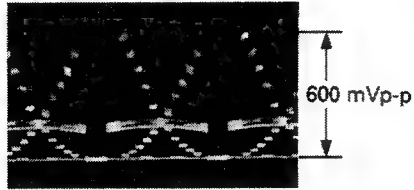
- 1. All voltage are DC mesured with a digital voltmeter.
- 2. All waveforms are taken and DC voltage is measured in condition below.

- Connect the camera adapter CA-537/537P to the camera.
- After the auto white balance adjustment is complete, shooting the grayscale chart, adjust the lens iris so that a white level is 100 IRE (700 mV) on the waveform monitor.
- SWITC H POSITION
  - OUTPUT : CAM(DCC OFF) • CLO CK : OFF
  - GAIN : 0dB • EVS : OFF
  - WHITE BAL : A • TURBO GAIN : OFF
  - SHUTTER : OFF • MATRIX : OFF
  - ZEBRA MARKER : OFF • ATW : OFF
  - PHASE : 0° • A IRIS MODE : STD

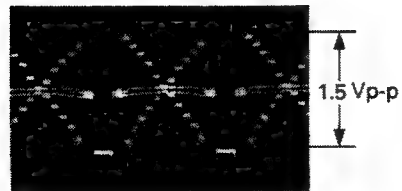
TP1, 5, 9  
PRE KNEE (R/G/B)



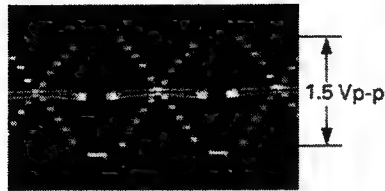
TP2, 6, 10  
DELAYED (R/G/B)



TP3, 7, 11  
GAMMA COMP. (R/G/B)

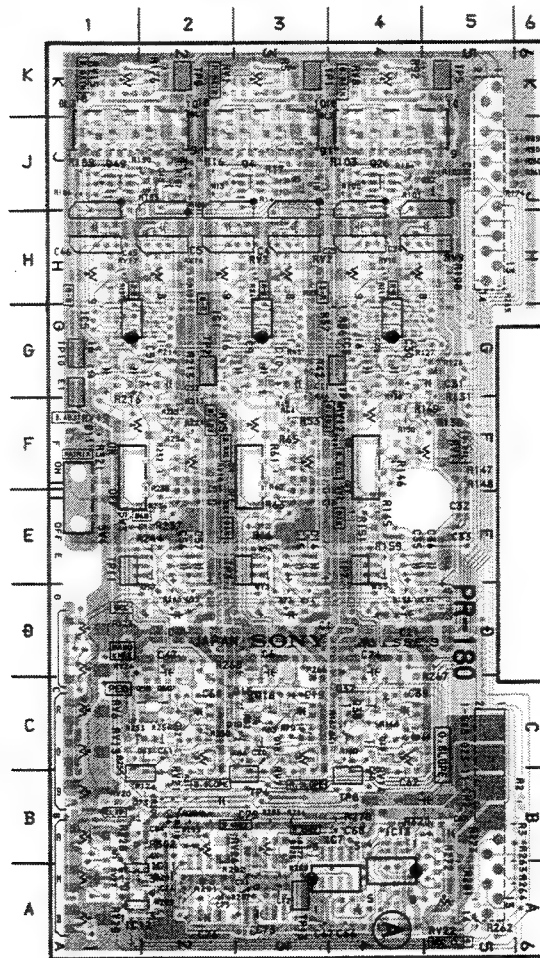


TP4, 8, 12  
DETAIL MIX (R/G/B)





SERIAL No. 10001-10293 (UC)  
30001-30281 (J)  
40001-40481 (EK)



1-648-023-11 COMPONENT SIDE

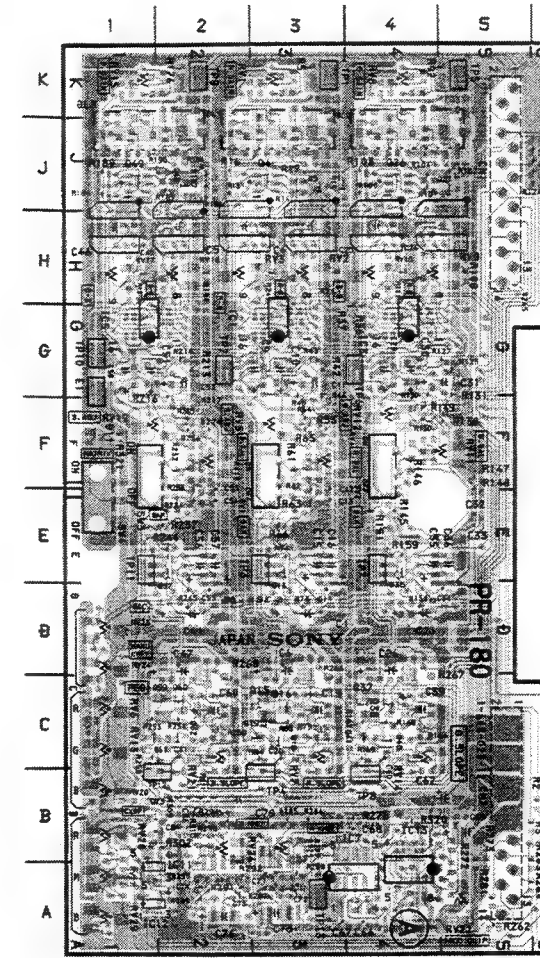
PR-180(1-648-023-11)

*CN1 J-5	IC3 G-4	*Q12 E-2	Q35 D-4	*Q58 C-2	RV4 F-4	RV27 A-1
*CN2 B-5	*IC4 E-5	Q13 D-3	*Q36 C-4	Q59 C-2	RV5 F-2	RV28 B-1
	IC5 G-1	*Q14 C-3	Q37 C-4	Q60 C-2	RV6 C-1	RV29 A-1
DL1 K-2	*IC6 E-2	Q15 C-3	Q38 C-4	*Q61 C-2	RV7 B-3	
DL2 K-3	IC7 B-4	Q16 C-3	*Q39 C-5	Q62 C-2	RV8 K-4	SW1 E-2
DL3 K-1	*IC8 A-3	*Q17 C-3	Q40 C-4	Q63 C-2	RV9 H-5	SW2 F-4
	*IC9 B-4	Q18 C-3	Q41 C-4	*Q64 C-2	RV10 H-4	SW3 E-1
*D1 F-3	*IC10 A-2	Q19 C-3	*Q42 C-4	*Q65 B-1	RV11 F-5	SW4 E-1
*D2 F-3	IC11 A-2	*Q20 C-3	*Q43 B-4	*Q66 C-2	RV12 F-4	
*D3 C-3	IC12 A-1	*Q21 B-3	*Q44 C-5	*Q67 A-5	RV13 C-1	TP1 K-3
*D4 F-4	IC13 B-4	*Q22 C-3	*Q45 K-2	*Q68 A-5	RV14 B-4	TP2 G-2
*D5 F-4		*Q23 K-4	*Q46 J-2	*Q69 B-5	RV15 K-1	TP3 E-2
*D6 C-5	*Q1 K-3	*Q24 J-4	*Q47 J-1	*Q70 B-4	RV16 H-2	TP4 B-3
*D7 F-2	*Q2 J-3	*Q25 J-4	Q48 J-2	*Q71 A-4	RV17 H-1	TP5 K-5
*D8 F-2	*Q3 J-2	Q26 J-4	Q49 J-1	*Q72 A-1	RV18 F-2	TP6 G-4
*D9 C-2	Q4 J-3	Q27 J-5	*Q50 J-1	Q73 B-1	RV19 F-1	TP7 E-4
*D10 A-4	Q5 J-3	*Q28 J-4	*Q51 G-1	*Q74 J-3	RV20 B-1	TP8 B-4
D11 F-1	*Q6 J-3	*Q29 G-4	*Q52 G-1	*Q75 J-4	RV21 B-2	TP9 K-2
	*Q7 G-2	*Q30 G-4	*Q53 F-1	*Q76 J-1	RV22 A-5	TP10 G-1
E1 G-1	*Q8 G-2	*Q31 F-4	*Q54 G-2		RV23 D-1	TP11 E-1
	*Q9 G-2	*Q32 G-5	*Q55 G-1	RV1 K-2	RV24 D-1	TP12 B-1
IC1 G-2	*Q10 G-3	*Q33 G-4	*Q56 E-1	RV2 H-3	RV25 B-3	TP13 A-3
*IC2 E-3	*Q11 G-3	*Q34 E-4	Q57 D-2	RV3 H-3	RV26 B-2	

\*;SOLDERING SIDE

C-8

SERIAL No. 10351 and higher (UC)  
30301 and higher (J)  
40501 and higher (EK)



1-648-023-12 COMPONENT SIDE

PR-180(1-648-023-12)

*CN1 J-5	IC3 G-4	*Q12 E-2	Q35 D-4	*Q58 C-2	RV4 F-4	RV27 A-1
*CN2 B-5	*IC4 E-5	Q13 D-3	*Q36 C-4	Q59 C-2	RV5 F-2	RV28 B-1
	IC5 G-1	*Q14 C-3	Q37 C-4	Q60 C-2	RV6 C-1	RV29 A-1
DL1 K-2	*IC6 E-2	Q15 C-3	Q38 C-4	*Q61 C-2	RV7 B-3	
DL2 K-3	IC7 B-4	Q16 C-3	*Q39 C-5	Q62 C-2	RV8 K-4	SW1 E-2
DL3 K-1	*IC8 A-3	*Q17 C-3	Q40 C-4	Q63 C-2	RV9 H-5	SW2 F-4
	*IC9 B-4	Q18 C-3	Q41 C-4	*Q64 C-2	RV10 H-4	SW3 E-1
*D1 F-3	*IC10 A-2	Q19 C-3	*Q42 C-4	*Q65 B-1	RV11 F-5	SW4 E-1
*D2 F-3	IC11 A-2	*Q20 C-3	*Q43 B-4	*Q66 C-2	RV12 F-4	
*D3 C-3	IC12 A-1	*Q21 B-3	*Q44 C-5	*Q67 A-5	RV13 C-1	TP1 K-3
*D4 F-4	IC13 B-4	*Q22 C-3	*Q45 K-2	*Q68 A-5	RV14 B-4	TP2 G-2
*D5 F-4		*Q23 K-4	*Q46 J-2	*Q69 B-5	RV15 K-1	TP3 E-2
*D6 C-5	*Q1 K-3	*Q24 J-4	*Q47 J-1	*Q70 B-4	RV16 H-2	TP4 B-3
*D7 F-2	*Q2 J-3	*Q25 J-4	Q48 J-2	*Q71 A-4	RV17 H-1	TP5 K-5
*D8 F-2	*Q3 J-2	Q26 J-4	Q49 J-1	*Q72 A-1	RV18 F-2	TP6 G-4
*D9 C-2	Q4 J-3	Q27 J-5	*Q50 J-1	Q73 B-1	RV19 F-1	TP7 E-4
*D10 A-4	Q5 J-3	*Q28 J-4	*Q51 G-1	*Q74 J-3	RV20 B-1	TP8 B-4
D11 F-1	*Q6 J-3	*Q29 G-4	*Q52 G-1	*Q75 J-4	RV21 B-2	TP9 K-2
	*Q7 G-2	*Q30 G-4	*Q53 F-1	*Q76 J-1	RV22 A-5	TP10 G-1
E1 G-1	*Q8 G-2	*Q31 F-4	*Q54 G-2		RV23 D-1	TP11 E-1
	*Q9 G-2	*Q32 G-5	*Q55 G-1	RV1 K-2	RV24 D-1	TP12 B-1
IC1 G-2	*Q10 G-3	*Q33 G-4	*Q56 E-1	RV2 H-3	RV25 B-3	TP13 A-3
*IC2 E-3	*Q11 G-3	*Q34 E-4	Q57 D-2	RV3 H-3	RV26 B-2	

\*;SOLDERING SIDE

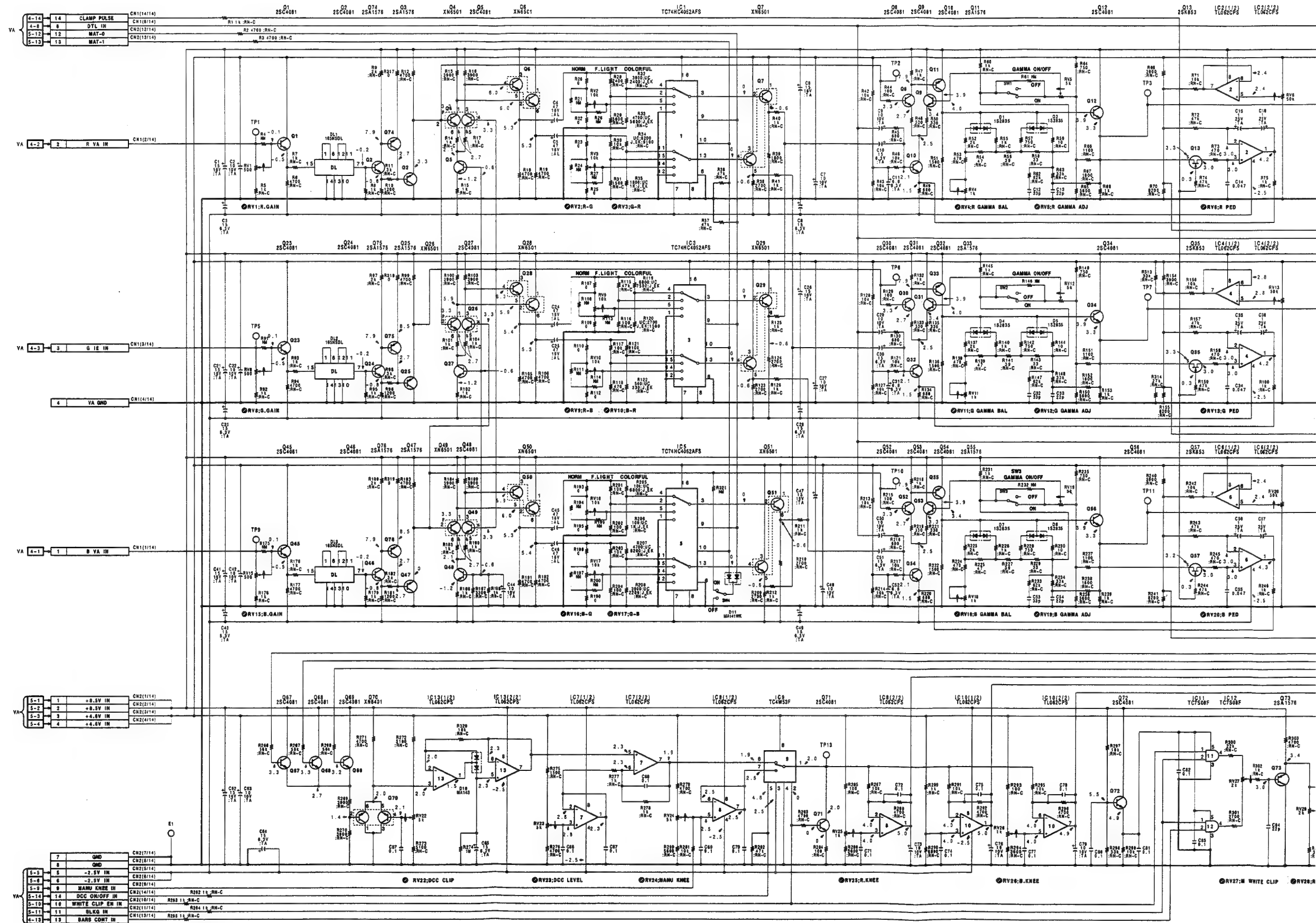
C-8

DXC-537A (J,UC)  
DXC-537AP (EK)

PR-180

PR-180

## PR-180 BOARD



DXC-537A (J,U,C)  
DXC-537AP(EK)

C-9

C-9

A

B

C

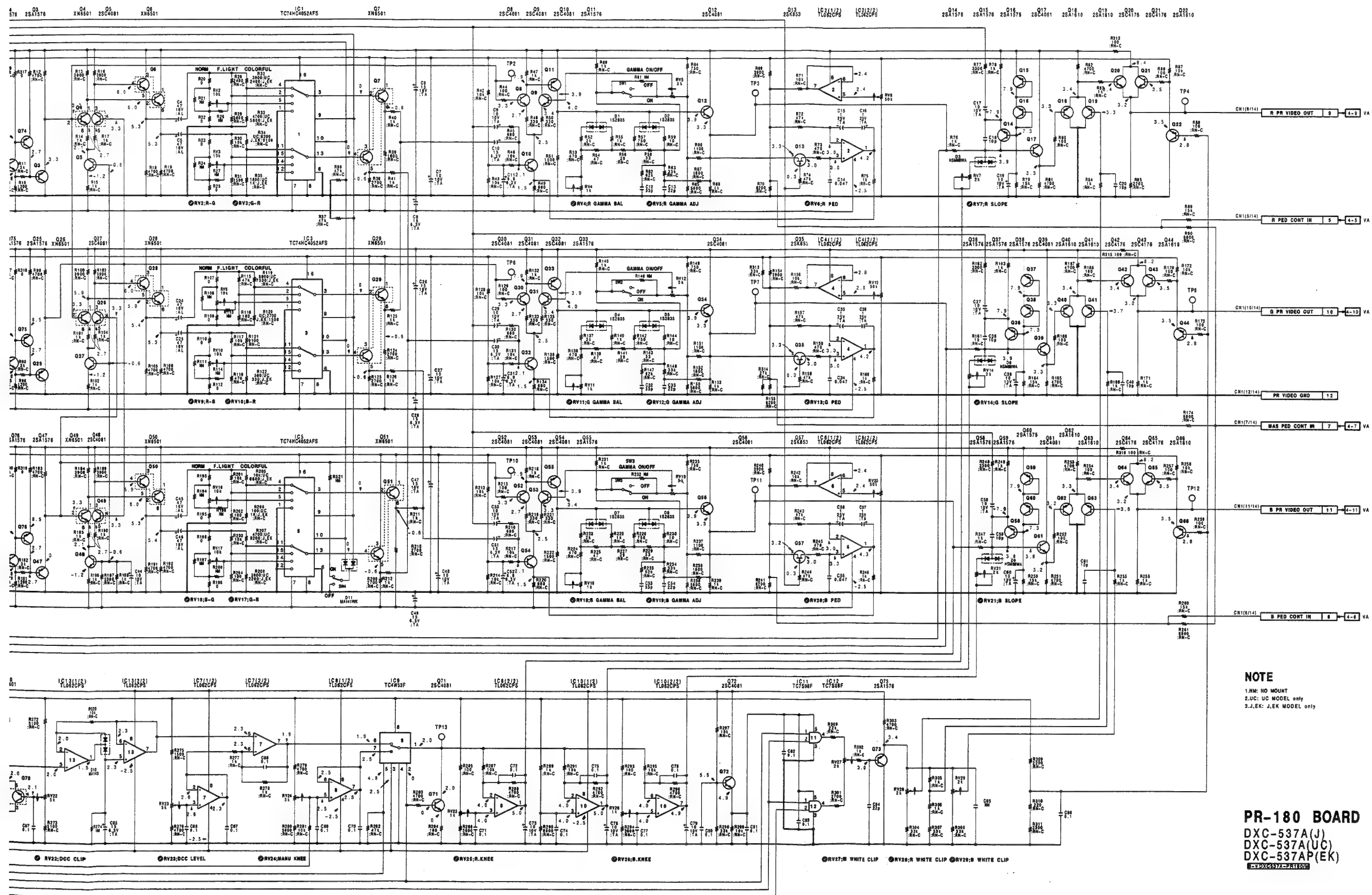
D

E

F

G

H





## IE-40 BOARD

### IE-40 Board

#### 注意:

1. DC電圧はデジタル電圧計による値。
2. 波形写真、及びDC電圧は下記条件での測定。

- 本機にCA-537を接続する。
- オートホワイトバランスをとった後にグレースケールチャートを撮像し、波形モニターにて、ビデオ出力の白レベルが100 IREになる様にレンズ絞りをセットする。
- SWITCH POSITION
 

• OUTPUT : CAM(DCC OFF)	• CLOCK : OFF
• GAIN : 0dB	• EVS : OFF
• WHITE BAL : A	• TURBO GAIN : OFF
• SHUTTER : OFF	• MATRIX : OFF
• ZEBRA MARKER : OFF	• ATW : OFF
• PHASE : 0°	• A IRIS MODE : STD

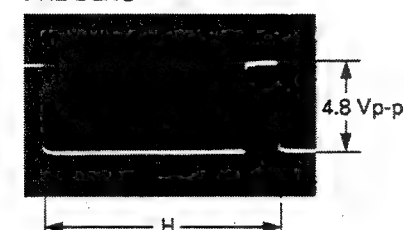
#### NOTE:

1. All voltage are DC mesured with a digital voltmeter.
2. All waveforms are taken and DC voltage is measured in condition below.

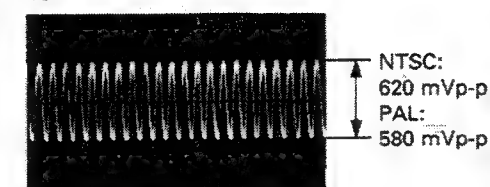
- Connect the camera adapter CA-537/537P to the camera.
- After the auto white balance adjustment is complete, shooting the grayscale chart, adjust the lens iris so that a white level is 100 IRE (700 mV) on the waveform monitor.
- SWITCH POSITION
 

• OUTPUT : CAM(DCC OFF)	• CLOCK : OFF
• GAIN : 0dB	• EVS : OFF
• WHITE BAL : A	• TURBO GAIN : OFF
• SHUTTER : OFF	• MATRIX : OFF
• ZEBRA MARKER : OFF	• ATW : OFF
• PHASE : 0°	• A IRIS MODE : STD

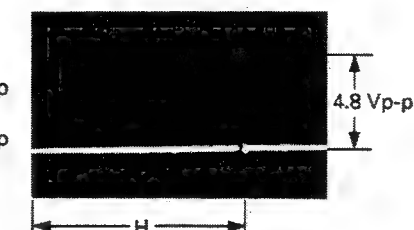
CN2-3pin  
PRE BLKG



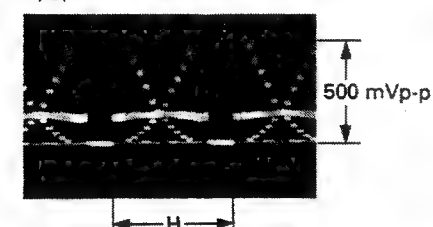
CN2-1pin  
28MHz



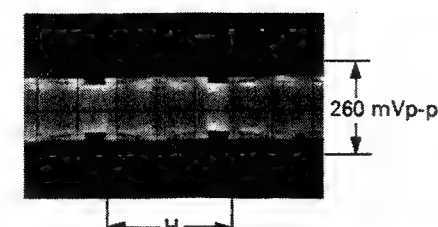
CN2-4pin  
CLP



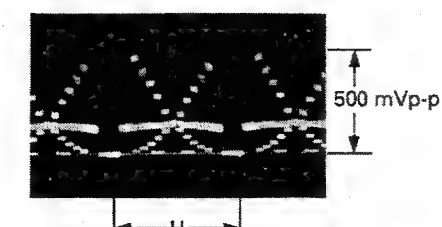
CN3-4pin, TP12, IC1-1pin  
R/G/B



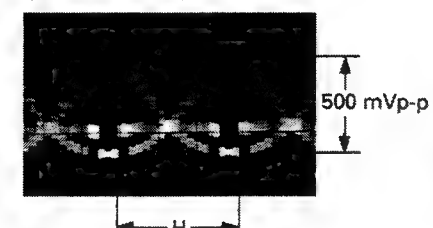
IC1-12pin  
IC1 G OUT



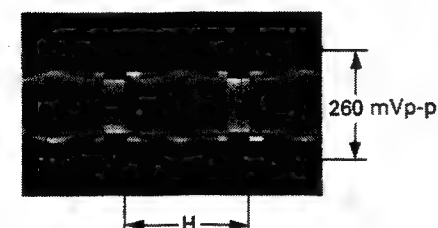
TP2  
G IE VIDEO



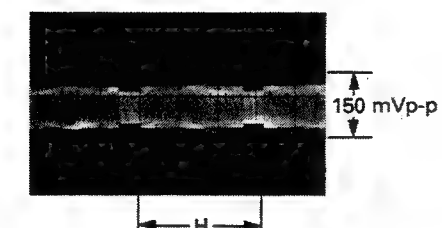
TP4  
2H DELAYED G



TP1

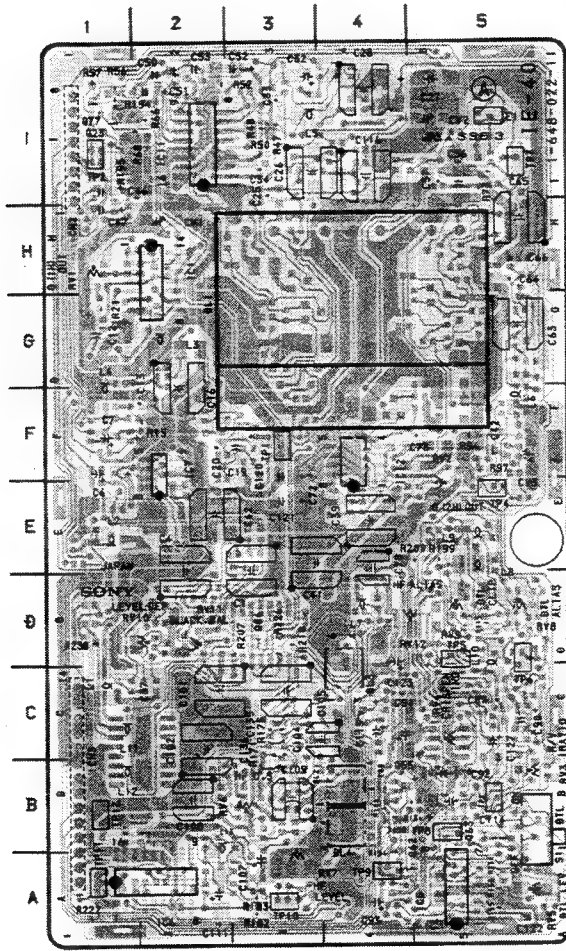


TP3

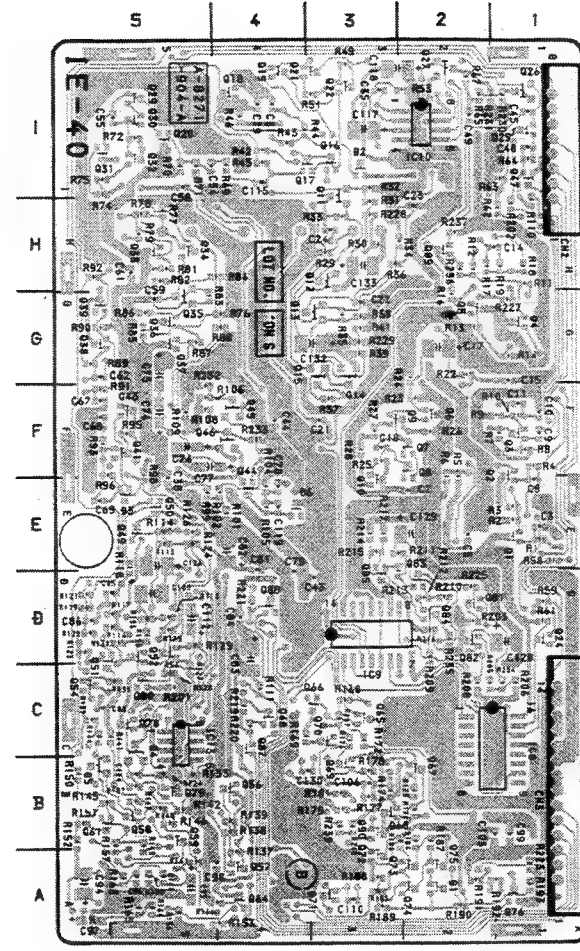




SERIAL No. 10001-10293 (UC)  
30001-30281 (J)  
40001-40481 (EK)



1-648-022-11 COMPONENT SIDE



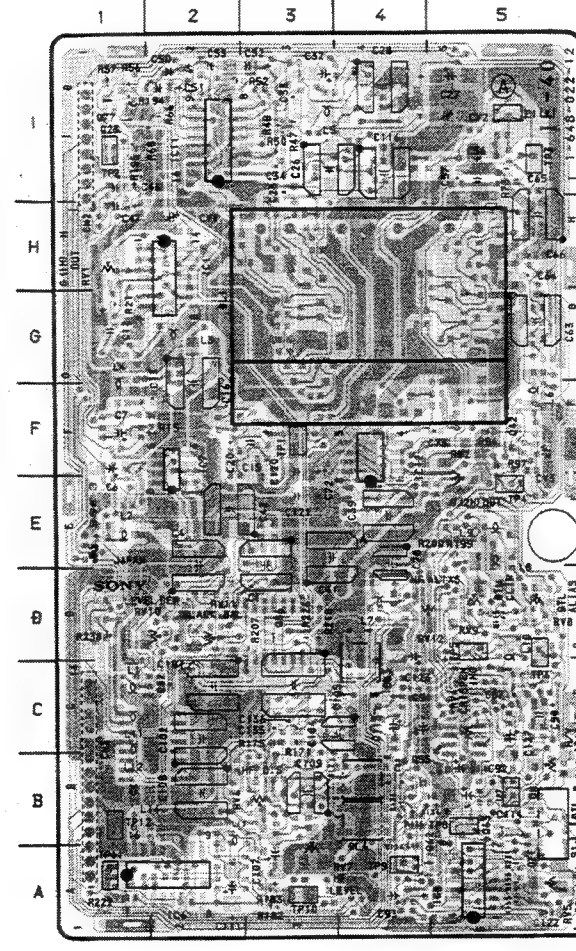
1-648-022-11 SOLDERING SIDE

## IE-40(1-648-022-11)

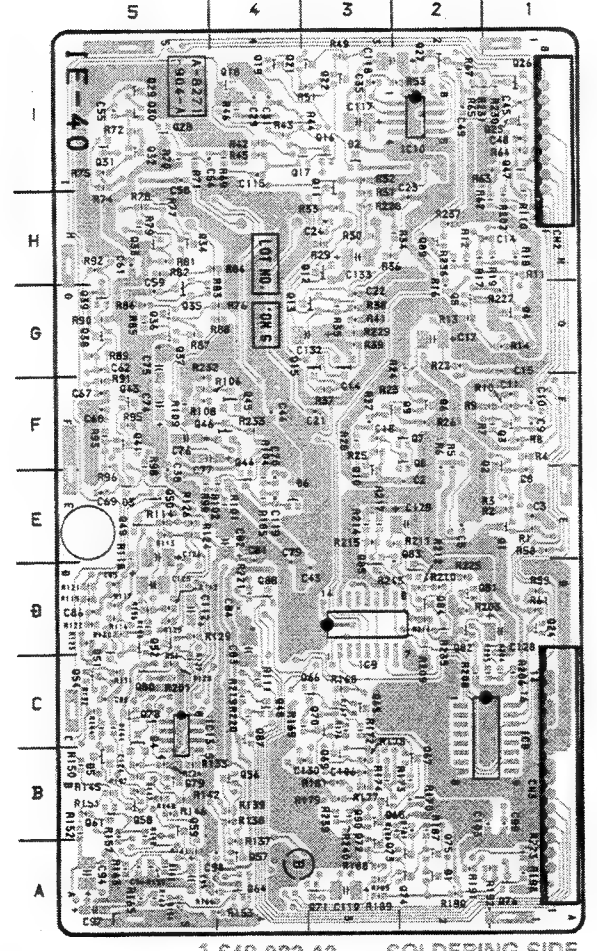
*CN2 H-1	IC6 A-2	*Q2 F-2	*Q26 I-1	*Q50 E-5	*Q74 A-2	RV6 B-2
*CN3 B-1	IC7 F-2	*Q3 F-1	*Q27 I-2	*Q51 D-5	*Q75 A-2	RV7 A-4
	*IC8 C-1	*Q4 G-1	*Q28 I-5	*Q52 D-5	*Q76 A-1	RV8 D-5
CV1 H-2	*IC9 C-3	*Q5 G-2	*Q29 I-5	*Q53 C-5	*Q77 I-1	RV9 D-5
CV2 I-5	*IC10 I-2	*Q6 F-2	*Q30 I-5	*Q54 C-5	*Q78 C-5	RV10 D-2
CV3 E-5	IC11 I-2	*Q7 F-2	*Q31 I-5	Q55 B-4	*Q79 B-5	RV11 D-2
	IC12 F-4	*Q8 F-2	*Q32 I-5	*Q56 B-4	*Q80 C-5	RV12 D-4
*D1 A-2	*IC13 C-5	*Q9 F-2	*Q33 H-5	*Q57 A-4	*Q81 D-2	
*D2 I-3		*Q10 E-3	*Q34 H-5	*Q58 B-5	*Q82 D-2	S1 A-5
*D3 E-5	L2 E-1	*Q11 I-3	*Q35 G-5	*Q59 B-5	*Q83 E-2	
*D4 C-5	L3 G-2	*Q12 H-3	*Q36 G-5	*Q61 B-5	*Q84 D-2	TP1 F-3
*D5 B-5	L4 G-1	*Q13 G-4	*Q37 G-5	*Q62 A-4	*Q85 D-3	TP2 I-1
*D6 E-4	L5 I-3	*Q14 F-3	*Q38 G-5	Q63 B-5	Q86 D-3	TP3 I-5
	L6 F-5	*Q15 G-4	*Q39 G-5	*Q64 A-4	*Q87 C-4	TP4 E-5
DL1 G-2	L7 D-4	*Q16 I-3	*Q41 F-5	*Q65 C-3	*Q88 D-4	TP5 D-5
DL2 B-3	L8 D-5	*Q17 I-4	*Q42 F-5	*Q66 C-3	*Q89 H-2	TP6 C-5
DL3 C-4	L9 E-5	*Q18 I-4	*Q43 F-5	*Q67 B-2	*Q90 B-3	TP7 B-5
DL4 A-4	L10 D-5	*Q19 I-4	*Q44 F-4	*Q68 B-3		TP8 B-5
	L11 C-1	*Q21 I-4	*Q45 F-4	*Q69 B-3	RV1 H-1	TP9 A-4
E1 I-5	L12 B-1	*Q22 I-3	*Q46 F-5	*Q70 C-3	RV2 F-5	TP10 A-3
	L13 B-2	Q23 I-1	*Q47 I-1	*Q71 A-3	RV3 B-5	TP11 A-1
IC1 H-2		*Q24 D-1	*Q48 C-4	*Q72 A-3	RV4 C-5	TP12 B-1
IC5 A-5	*Q1 E-1	*Q25 I-1	*Q49 E-5	*Q73 A-3	RV5 A-5	

\*:SOLDERING SIDE

SERIAL No. 10351 and higher (UC)  
30301 and higher (J)  
40501 and higher (EK)



1-648-022-12 COMPONENT SIDE



1-648-022-12 SOLDERING SIDE

## IE-40(1-648-022-12)

*CN2 H-1	IC6 A-2	*Q2 F-2	*Q26 I-1	*Q50 E-5	*Q74 A-2	RV6 B-2
*CN3 B-1	IC7 F-2	*Q3 F-1	*Q27 I-2	*Q51 D-5	*Q75 A-2	RV7 A-4
	*IC8 C-1	*Q4 G-1	*Q28 I-5	*Q52 D-5	*Q76 A-1	RV8 D-5
CV1 H-2	*IC9 C-3	*Q5 G-2	*Q29 I-5	*Q53 C-5	*Q77 I-1	RV9 D-5
CV2 I-5	*IC10 I-2	*Q6 F-2	*Q30 I-5	*Q54 C-5	*Q78 C-5	RV10 D-2
CV3 E-5	IC11 I-2	*Q7 F-2	*Q31 I-5	Q55 B-4	*Q79 B-5	RV11 D-2
	IC12 F-4	*Q8 F-2	*Q32 I-5	*Q56 B-4	*Q80 C-5	RV12 D-4
*D1 A-2	*IC13 C-5	*Q9 F-2	*Q33 H-5	*Q57 A-4	*Q81 D-2	
*D2 I-3		*Q10 E-3	*Q34 H-5	*Q58 B-5	*Q82 D-2	S1 A-5
*D3 E-5	L2 E-1	*Q11 I-3	*Q35 G-5	*Q59 B-5	*Q83 E-2	
*D4 C-5	L3 G-2	*Q12 H-3	*Q36 G-5	*Q61 B-5	*Q84 D-2	TP1 F-3
*D5 B-5	L4 G-1	*Q13 G-4	*Q37 G-5	*Q62 A-4	*Q85 D-3	TP2 I-1
*D6 E-4	L5 I-3	*Q14 F-3	*Q38 G-5	Q63 B-5	Q86 D-3	TP3 I-5
	L6 F-5	*Q15 G-4	*Q39 G-5	*Q64 A-4	*Q87 C-4	TP4 E-5
DL1 G-2	L7 D-4	*Q16 I-3	*Q41 F-5	*Q65 C-3	*Q88 D-4	TP5 D-5
DL2 B-3	L8 D-5	*Q17 I-4	*Q42 F-5	*Q66 C-3	*Q89 H-2	TP6 C-5
DL3 C-4	L9 E-5	*Q18 I-4	*Q43 F-5	*Q67 B-2	*Q90 B-3	TP7 B-5
DL4 A-4	L10 D-5	*Q19 I-4	*Q44 F-4	*Q68 B-3		TP8 B-5
	L11 C-1	*Q21 I-4	*Q45 F-4	*Q69 B-3	RV1 H-1	TP9 A-4
E1 I-5	L12 B-1	*Q22 I-3	*Q46 F-5	*Q70 C-3	RV2 F-5	TP10 A-3
	L13 B-2	Q23 I-1	*Q47 I-1	*Q71 A-3	RV3 B-5	TP11 A-1
IC1 H-2		*Q24 D-1	*Q48 C-4	*Q72 A-3	RV4 C-5	TP12 B-1
IC5 A-5	*Q1 E-1	*Q25 I-1	*Q49 E-5	*Q73 A-3	RV5 A-5	

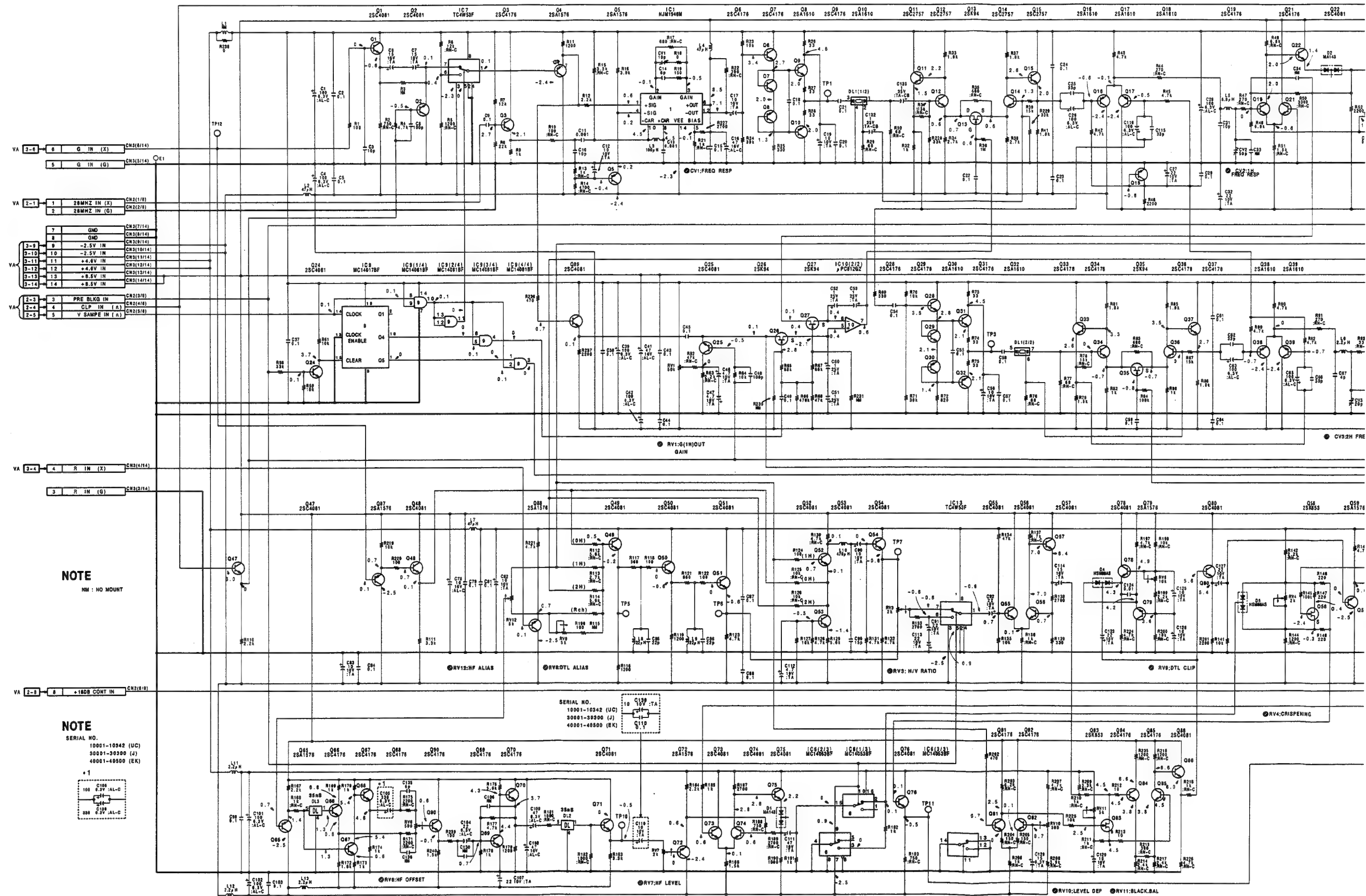
\*:SOLDERING SIDE

DXC-537A (J,UC)  
DXC-537AP(EK)

# IE-40 BOARD

IE-40

IE-40



DXC-537A (J,UC)  
DXC-537AP(EK)

C-11

C-11

A

B

C

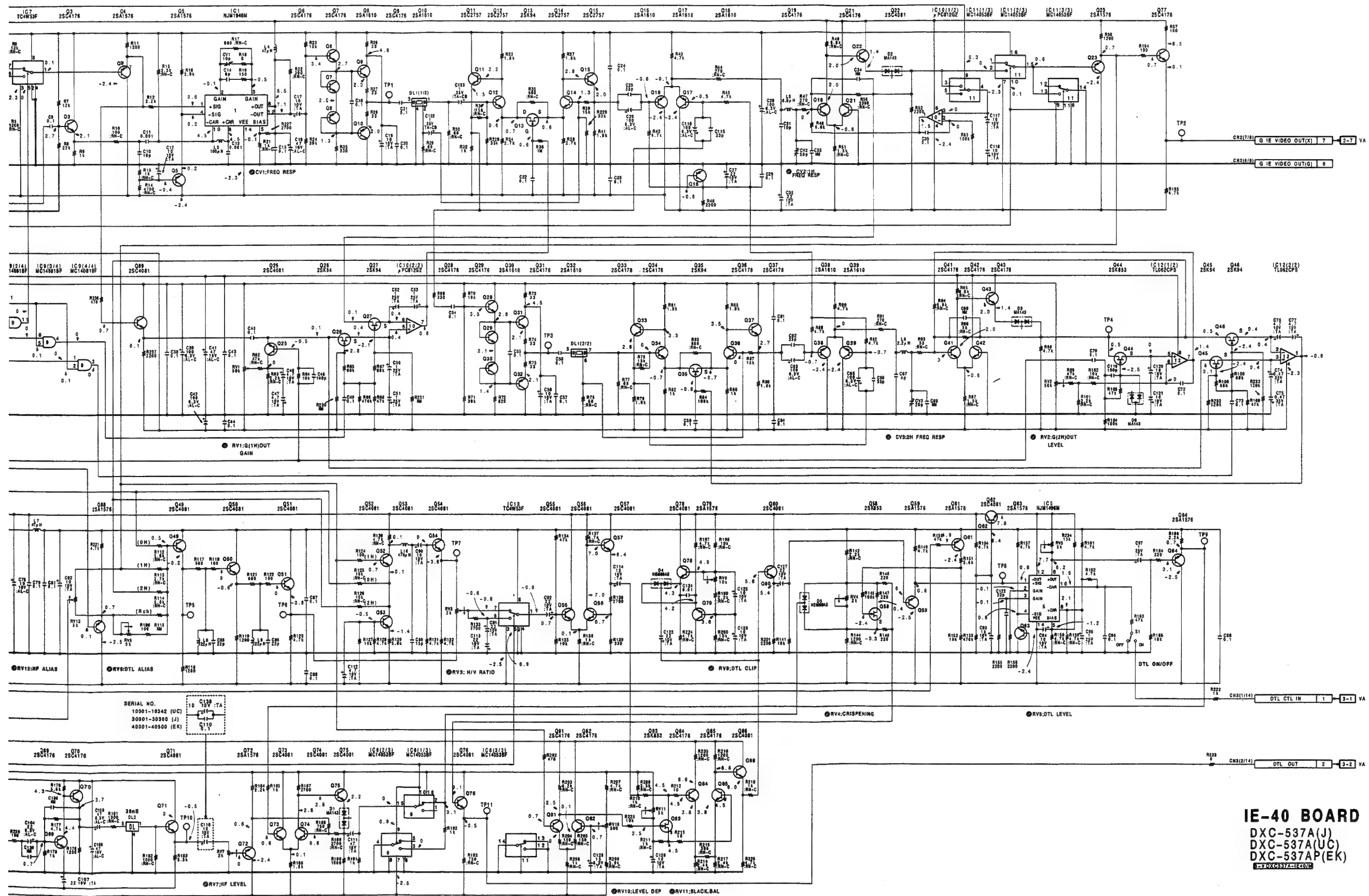
D

E

F

G

H



**IE-40 BOARD**  
DXC-537A(J)  
DXC-537A(UC)  
DXC-537AP(EK)  
**5-DXC-537A-IE40/L**





## SG-171 Board

## 注意:

1. DC電圧はデジタル電圧計による値。
2. 波形写真、及びDC電圧は下記条件での測定。

• 本機にCA-537を接続する。

## • SWITCH POSITION

• OUTPUT	: BARS	• CLOCK	: OFF
• GAIN	: 0dB	• EVS	: OFF
• WHITE BAL	: PRESET	• TURBO GAIN	: OFF
• SHUTTER	: OFF	• MATRIX	: OFF
• ZEBRA MARKER	: OFF	• ATW	: OFF
• PHASE	: 0°	• A IRIS MODE	: STD

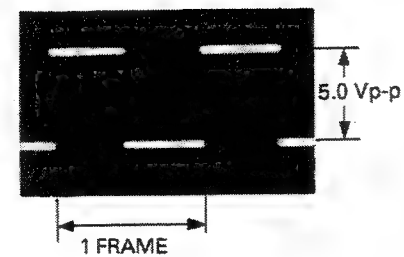
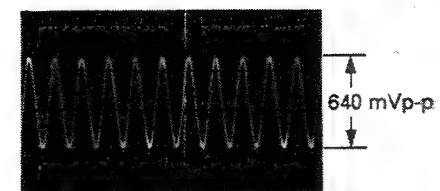
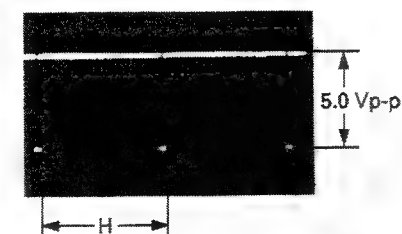
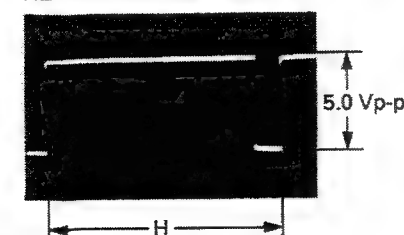
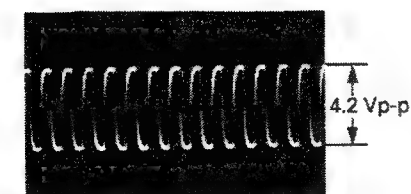
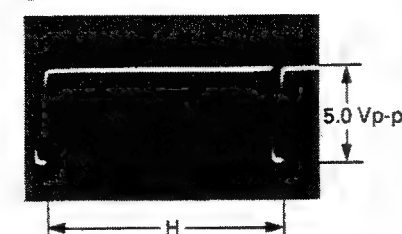
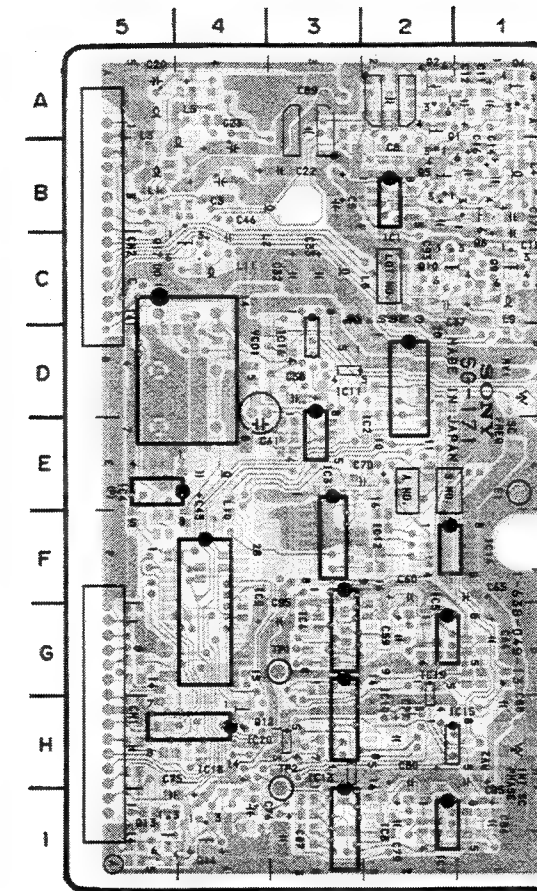
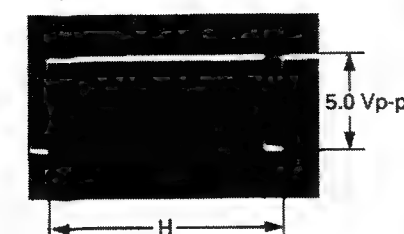
## NOTE:

1. All voltage are DC measured with a digital voltmeter.
2. All waveforms are taken and DC voltage is mesured in condition below.

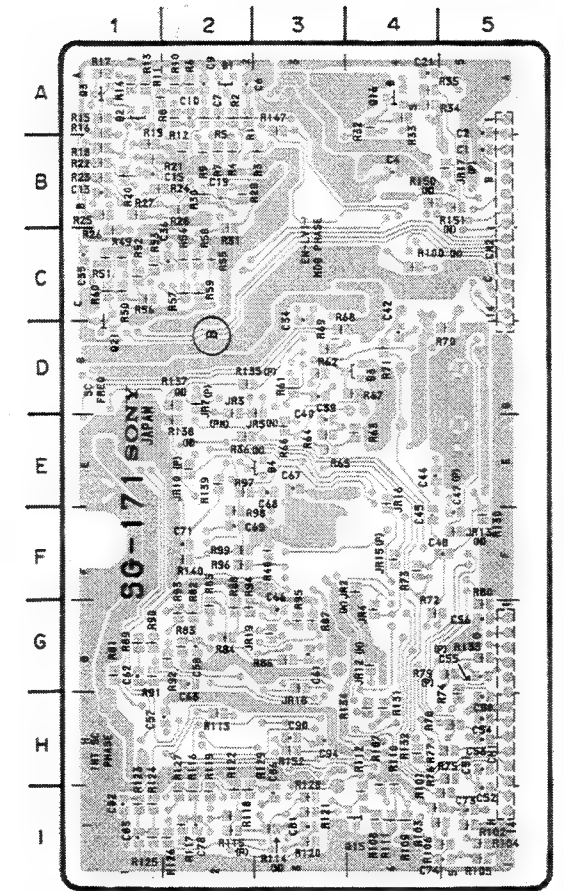
• Connect the camera adapter CA-537/537P to the camera.

## • SWITCH POSITION

• OUTPUT	: BARS	• CLOCK	: OFF
• GAIN	: 0dB	• EVS	: OFF
• WHITE BAL	: PRESET	• TURBO GAIN	: OFF
• SHUTTER	: OFF	• MATRIX	: OFF
• ZEBRA MARKER	: OFF	• ATW	: OFF
• PHASE	: 0°	• A IRIS MODE	: STD

CN1-1pin  
FLDCN2-8pin  
14MHzCN1-12pin  
VDCN1-13pin  
HDCN1-6pin  
SCCN1-8pin  
BFCN1-9pin  
SYNC

1-638-049-13 COMPONENT SIDE



1-638-049-13 SOLDERING SIDE

## SG-171(1-638-049-13)

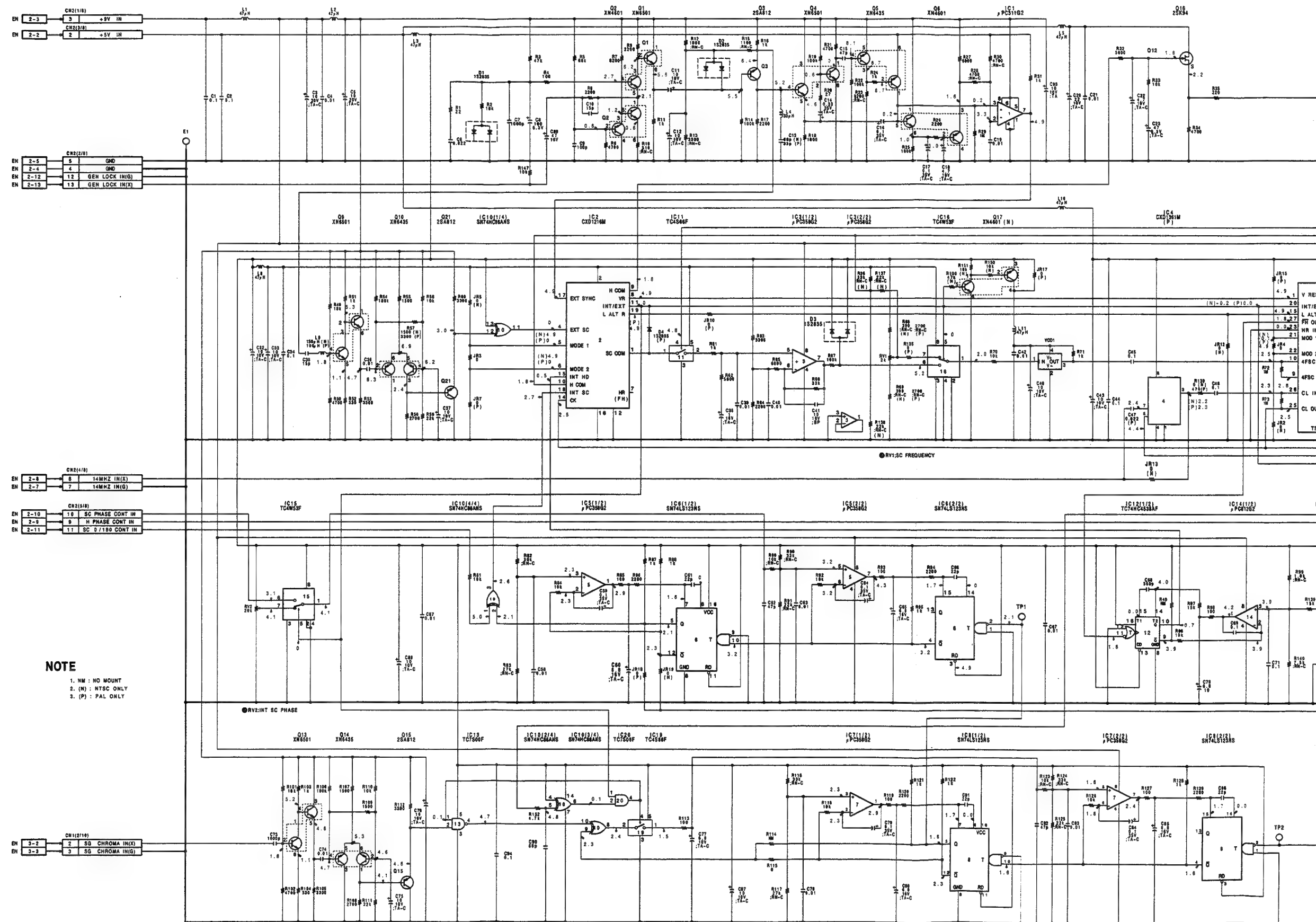
CN1	H-5	IC11	D-3	Q1	A-2
CN2	C-5	IC12	F-2	Q2	A-2
*D1	A-2	IC13	H-3	*Q3	A-1
*D2	A-1	IC14	F-1	Q4	A-1
*D3	D-4	IC15	H-1	Q5	B-2
*D4	E-3	IC16	D-3	Q6	C-1
		IC18	H-4	Q9	C-1
		IC19	G-2	Q10	C-2
E1	E-1	IC20	H-4	Q12	H-4
				Q13	I-5
IC1	C-2	L1	B-5	Q14	I-4
IC2	E-2	L2	C-3	*Q15	I-4
IC3	E-3	L3	A-5	*Q16	A-4
IC4	E-5	L4	B-1	Q17	C-5
IC5	F-2	L5	A-4	*Q21	D-1
IC6	G-3	L8	C-2		
IC7	I-2	L9	C-1	RV1	D-1
IC8	I-2	L10	E-4	RV2	H-1
IC9	F-4	L11	C-4		
IC10	H-2			TP1	G-3

\*;SOLDERING SIDE

TP2 H-3

VC01 D-4

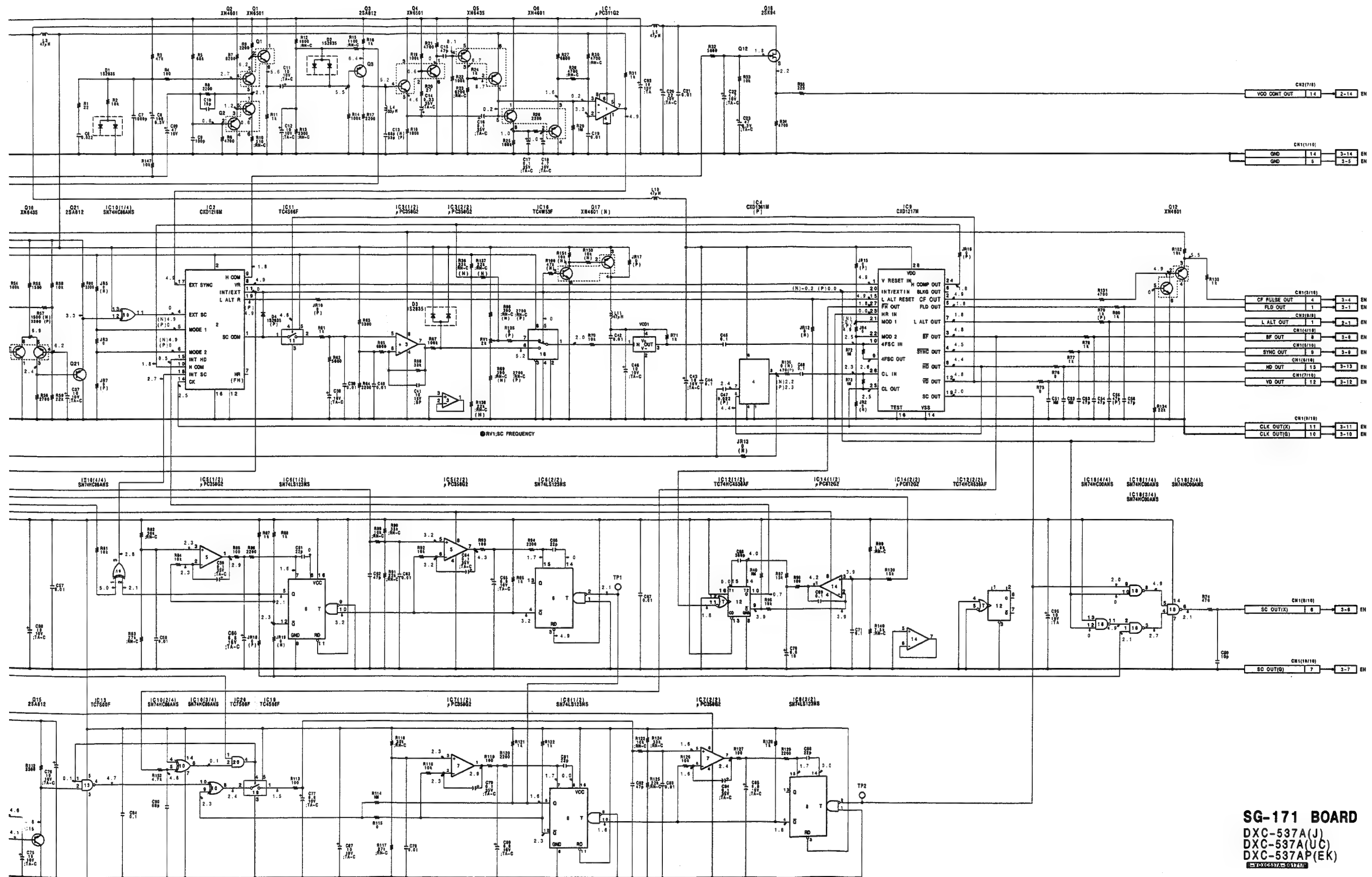
**SG-171 BOARD**



DXC-537A (J, U C)  
DXC-537AP(E K)

**C-13**

**C-13**



C-13

C-13

E

F

G

H

I

J

K

L

## EN-95A Board

## 注意:

1. DC電圧はデジタル電圧計による値。
2. 波形写真、及びDC電圧は下記条件での測定。

- 本機にCA-537を接続する。

## • SWITCH POSITION

• OUTPUT : BARS	• CLOCK : OFF
• GAIN : 0dB	• EVS : OFF
• WHITE BAL : PRESET	• TURBO GAIN : OFF
• SHUTTER : OFF	• MATRIX : OFF
• ZEBRA MARKER : OFF	• ATW : OFF
• PHASE : 0°	• A IRIS MODE : STD

3. \*はUCモデルの波形です。Jモデルのものは、セットアップレベルがゼロになっています。

## NOTE:

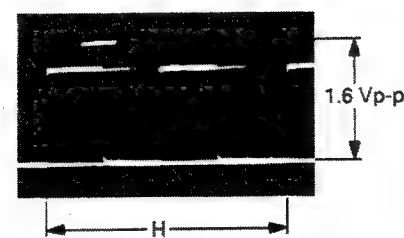
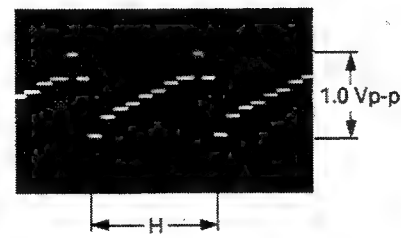
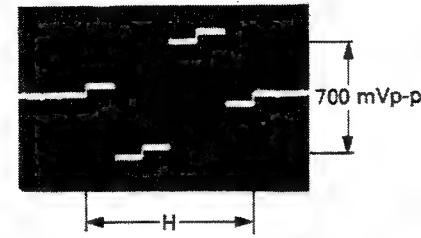
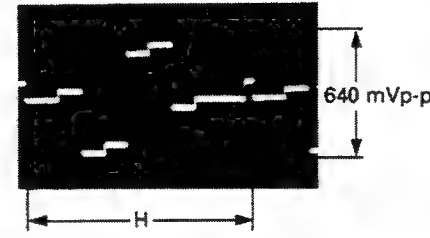
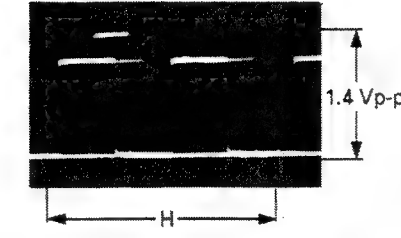
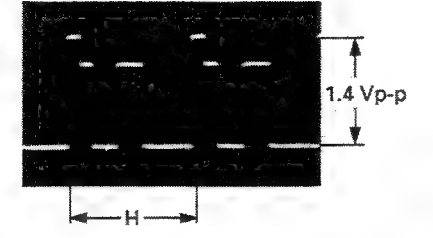
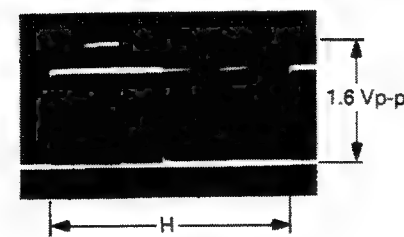
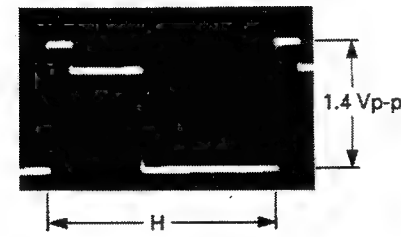
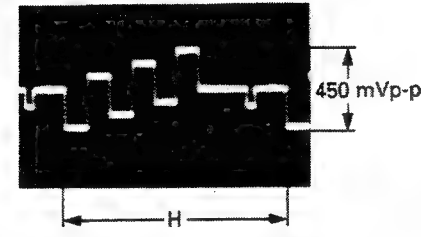
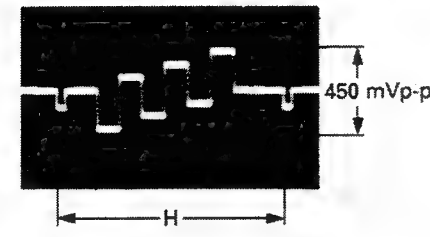
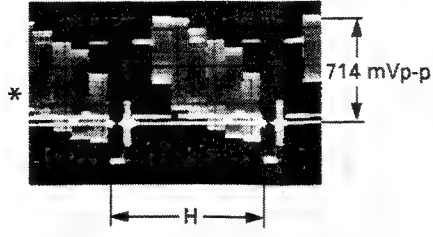
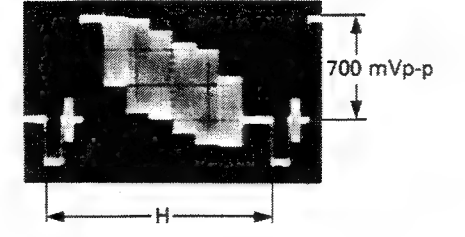
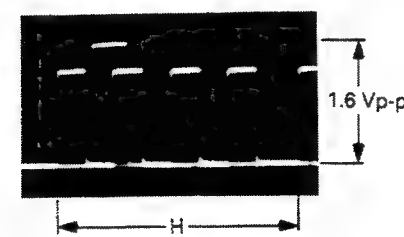
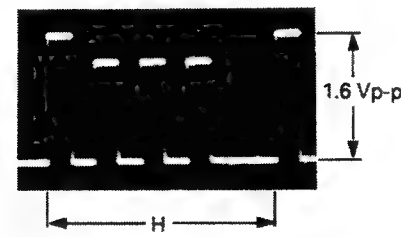
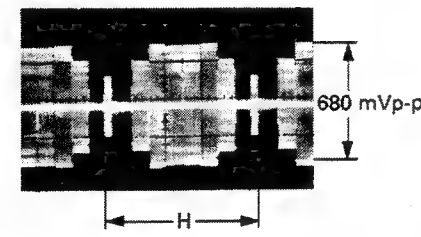
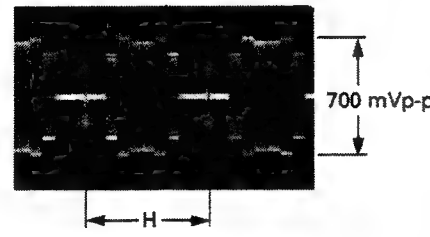
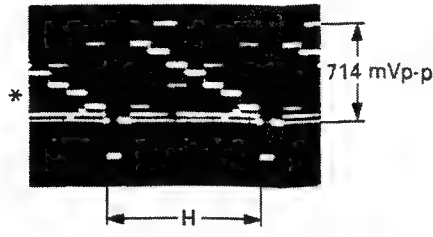
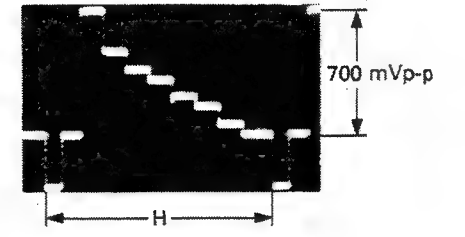
1. All voltage are DC measured with a digital voltmeter.
2. All waveforms are taken and DC voltage is measured in condition below.

- Connect the camera adapter CA-537/537P to the camera.

## • SWITCH POSITION

• OUTPUT : BARS	• CLOCK : OFF
• GAIN : 0dB	• EVS : OFF
• WHITE BAL : PRESET	• TURBO GAIN : OFF
• SHUTTER : OFF	• MATRIX : OFF
• ZEBRA MARKER : OFF	• ATW : OFF
• PHASE : 0°	• A IRIS MODE : STD

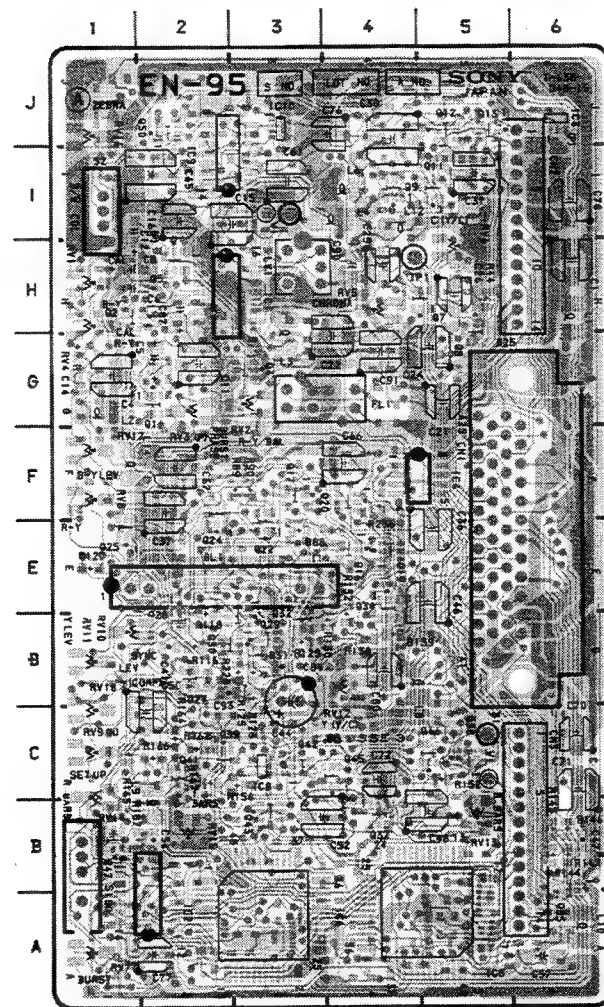
3. The waveform marked with \* is for UC model.  
For J model, the setup level is set to "0" at factory.

Q39-2pin [NTSC]  
RQ39-2pin [PAL]  
RIC1-1pin [NTSC]  
(R-Y)IC1-1pin [PAL]  
(R-Y)CN1-A7pin [NTSC]  
R VIDEOCN1-A7 [PAL]  
R VIDEOQ43-2pin [NTSC]  
GQ43-2pin [PAL]  
GIC1-4pin [NTSC]  
(B-Y)IC1-4pin [PAL]  
(B-Y)CN1-A14pin [NTSC]  
VBS VIDEOCN1-A14pin [PAL]  
VBS VIDEOQ35-4pin [NTSC]  
BQ35-4pin [PAL]  
BCN1-A11pin [NTSC]  
CHROMACN1-A11pin [PAL]  
CHROMACN1-A9pin [NTSC]  
YCN1-A9pin [PAL]  
Y

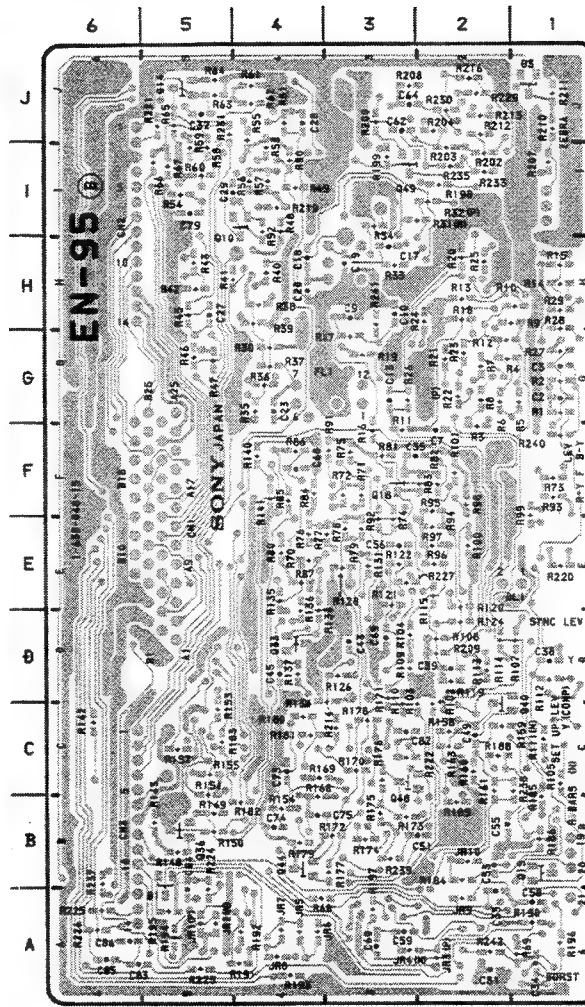
C-14

C-14





1-638-048-15 COMPONENT SIDE



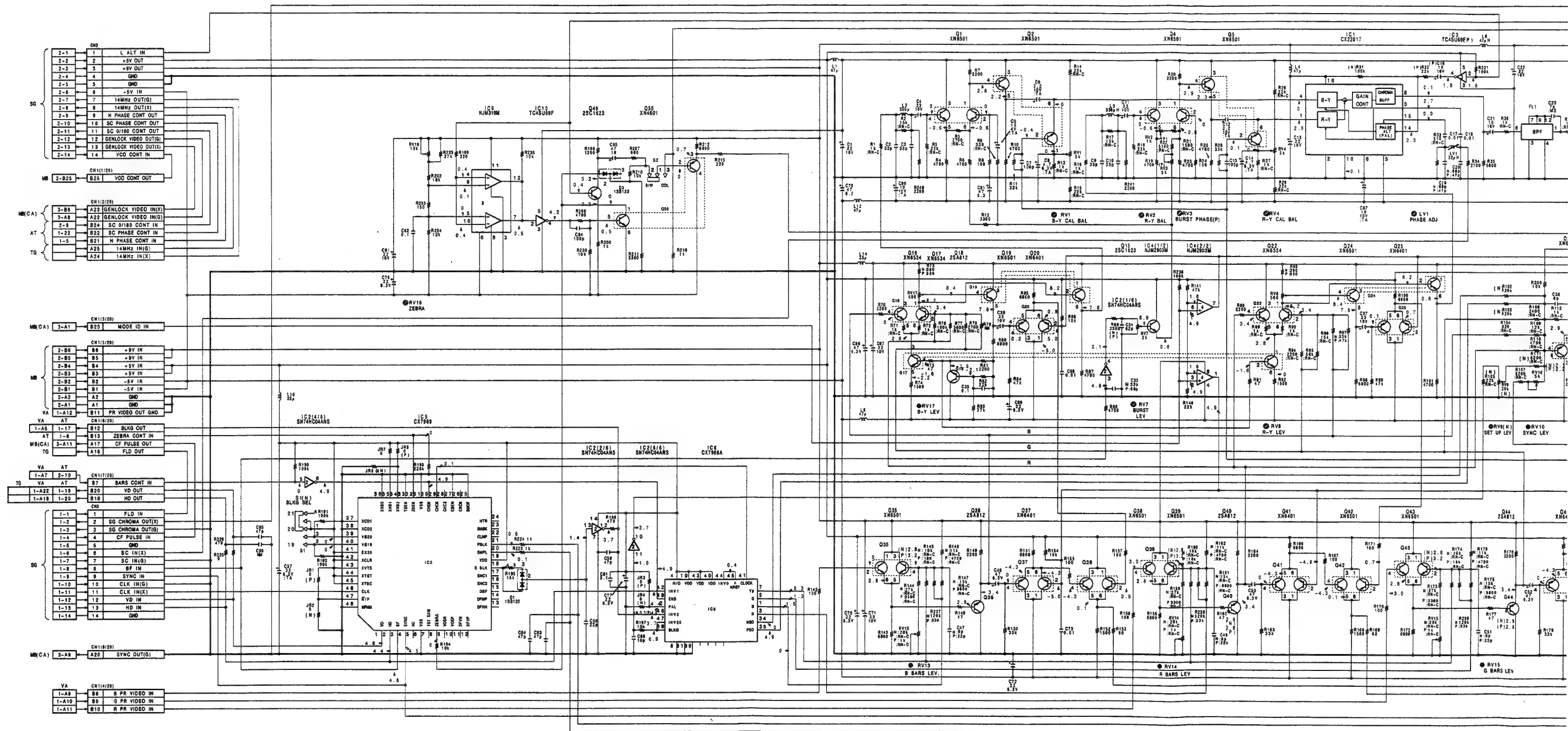
1-638-048-15 SOLDERING SIDE

EN-95A(1-648-048-11)

CN1	F-5	L1	H-6	Q12	J-5	Q35	A-6	RV5	H-4
		L2	G-1	Q13	J-5	*Q36	B-5	RV6	I-5
*D1	A-5	L3	G-3	*Q14	J-5	Q37	B-4	RV7	A-1
*D3	J-1	L4	I-4	*Q15	B-1	Q38	C-5	RV8	F-1
		L6	I-4	Q16	E-4	Q39	C-2	RV9	C-1
DL1	E-2	L8	C-5	Q17	F-3	*Q40	C-1	RV10	D-1
		L9	C-2	*Q18	F-3	Q41	C-2	RV11	D-1
FL1	G-1	L10	A-6	Q19	E-4	Q42	C-3	RV12	C-4
		L12	I-4	Q20	F-4	Q43	B-3	RV13	B-5
IC1	H-3	L14	F-2	Q22	E-3	*Q44	B-4	RV14	B-1
IC2	A-2			Q24	E-2	Q45	C-4	RV15	B-2
IC4	F-5	Q1	G-2	Q25	E-1	Q46	C-5	RV16	J-1
IC5	A-5	Q2	H-1	Q27	D-2	Q47	B-1	RV17	F-1
IC6	A-4	Q4	G-3	Q28	D-2	*Q48	B-3	RV18	D-1
IC8	C-3	Q5	H-2	Q29	D-3	*Q49	I-3		
IC9	I-2	Q7	H-5	Q30	D-2	Q50	J-2	S1	B-1
IC10	J-3	Q8	G-5	Q31	D-3			S2	I-1
		Q9	I-4	Q32	D-3	RV1	H-1	TP1	H-4
LV1	H-3	*Q10	I-5	*Q33	D-4	RV2	F-3		
		Q11	I-5	Q34	E-4	RV4	G-1		

\*,SOLDERING SIDE

## EN-95A BOARD

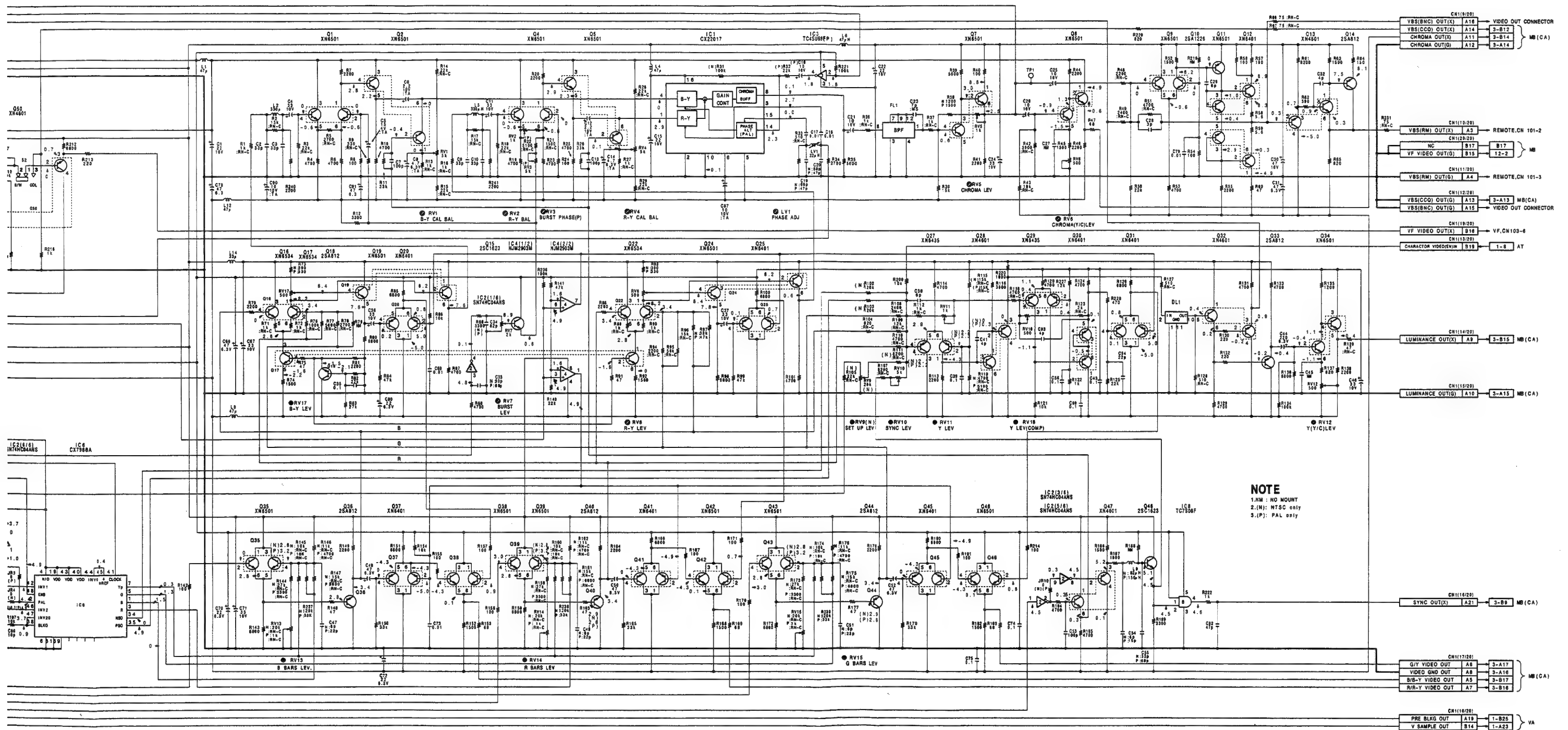


DXC-537A (J, U C)  
DXC-537AP(E K)

**C-15**

**C-15**

A	B	C	D	E	F	G	H
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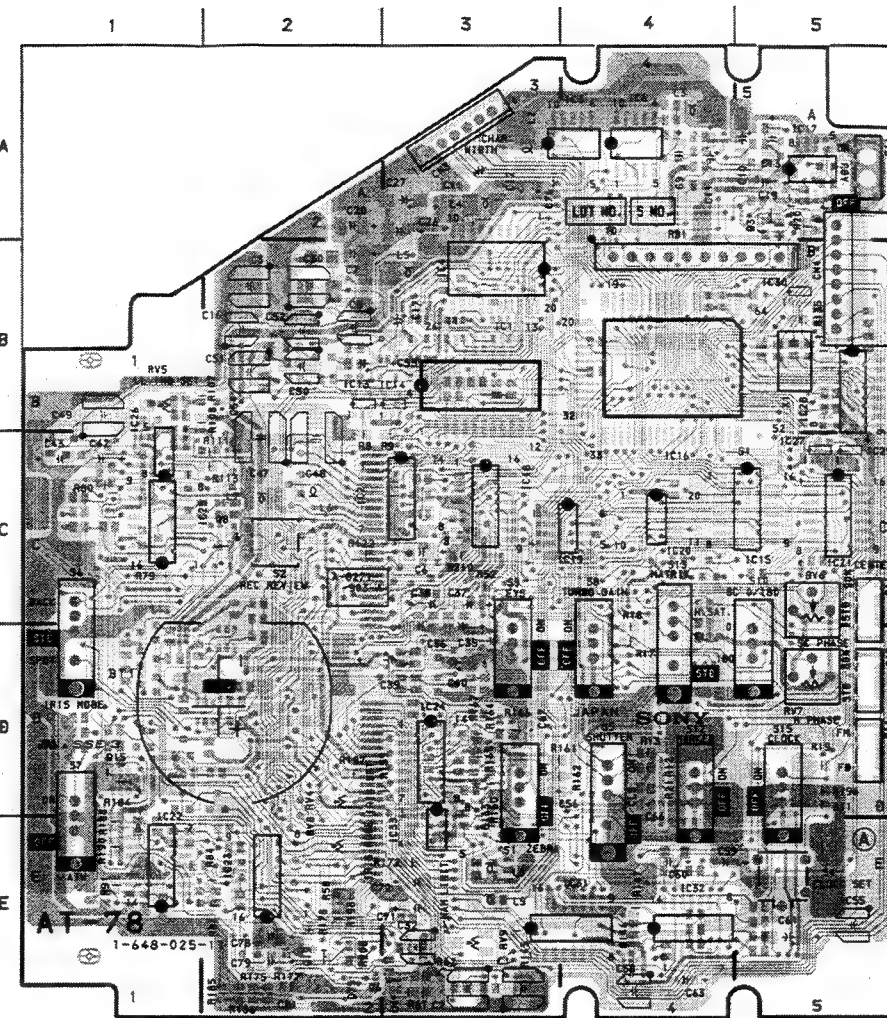


## AT-78 BOARD

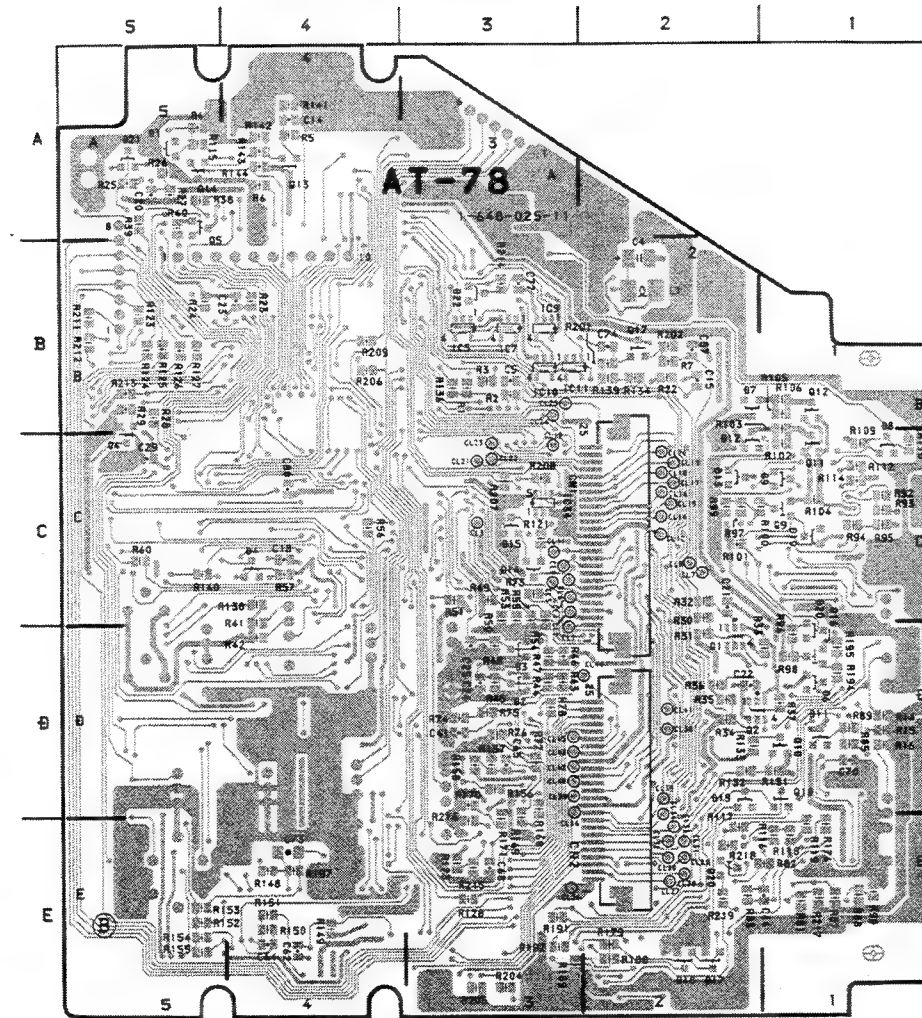
AT-78(1-648-025-11)

BT1	D-1	*L1	B-2
		L2	A-3
*CN1	C-3	L3	A-4
*CN2	E-3	L4	A-3
CN3	A-3	L5	B-3
CN4	B-5	L6	C-2
		L7	C-2
CV1	A-3	L8	E-3
		L9	E-3
*D1	A-5	*Q1	D-2
*D2	D-3	*Q2	D-2
*D3	D-3	Q3	A-5
*D4	C-4	*Q4	C-5
*D6	D-1	*Q5	A-5
*D7	B-2	Q6	E-2
*D8	B-1	Q8	C-2
*D9	C-1	*Q9	C-1
*D10	C-1	*Q10	D-1
*D11	D-1	*Q11	C-1
*D12	C-2	*Q12	B-1
*D13	C-2	*Q13	A-4
*D14	C-3	*Q14	A-5
*D15	C-3	Q15	D-1
*D17	E-2	*Q16	C-1
*D18	E-2	*Q17	B-2
*D19	D-2	*Q18	D-1
*D20	C-1	Q19	E-2
*D21	A-5	*Q20	E-2
*D22	B-3		
IC1	B-3	RB1	A-4
IC2	C-2	RV4	D-2
IC3	A-4	RV5	B-1
IC4	B-3	RV6	C-5
*IC5	B-3	RV7	D-5
IC6	A-4	RV8	E-2
*IC7	B-3	RV9	E-3
*IC9	B-3		
*IC10	B-3		
*IC11	B-3	S1	E-3
IC13	B-2	S2	C-2
IC14	B-3		
IC15	C-5	S4	E-4
IC16	C-4	S5	D-4
IC17	A-5	S6	C-1
IC18	C-3	S7	D-1
IC19	C-4	S8	C-4
IC20	C-4	S9	C-3
IC21	C-5	S10	C-5
IC22	E-1	S11	A-5
IC23	E-2	S12	D-4
IC24	D-3	S13	C-4
IC25	C-1	S14	D-5
IC26	B-1	S15	D-5
IC27	C-5	S16	C-5
IC28	B-5	S17	D-5
IC29	C-5		
IC30	B-5	X1	B-5
IC31	E-4		
IC32	E-4		
IC33	E-3		
*IC34	C-3		

\*;SOLDERING SIDE



1-648-025-11 COMPONENT SIDE



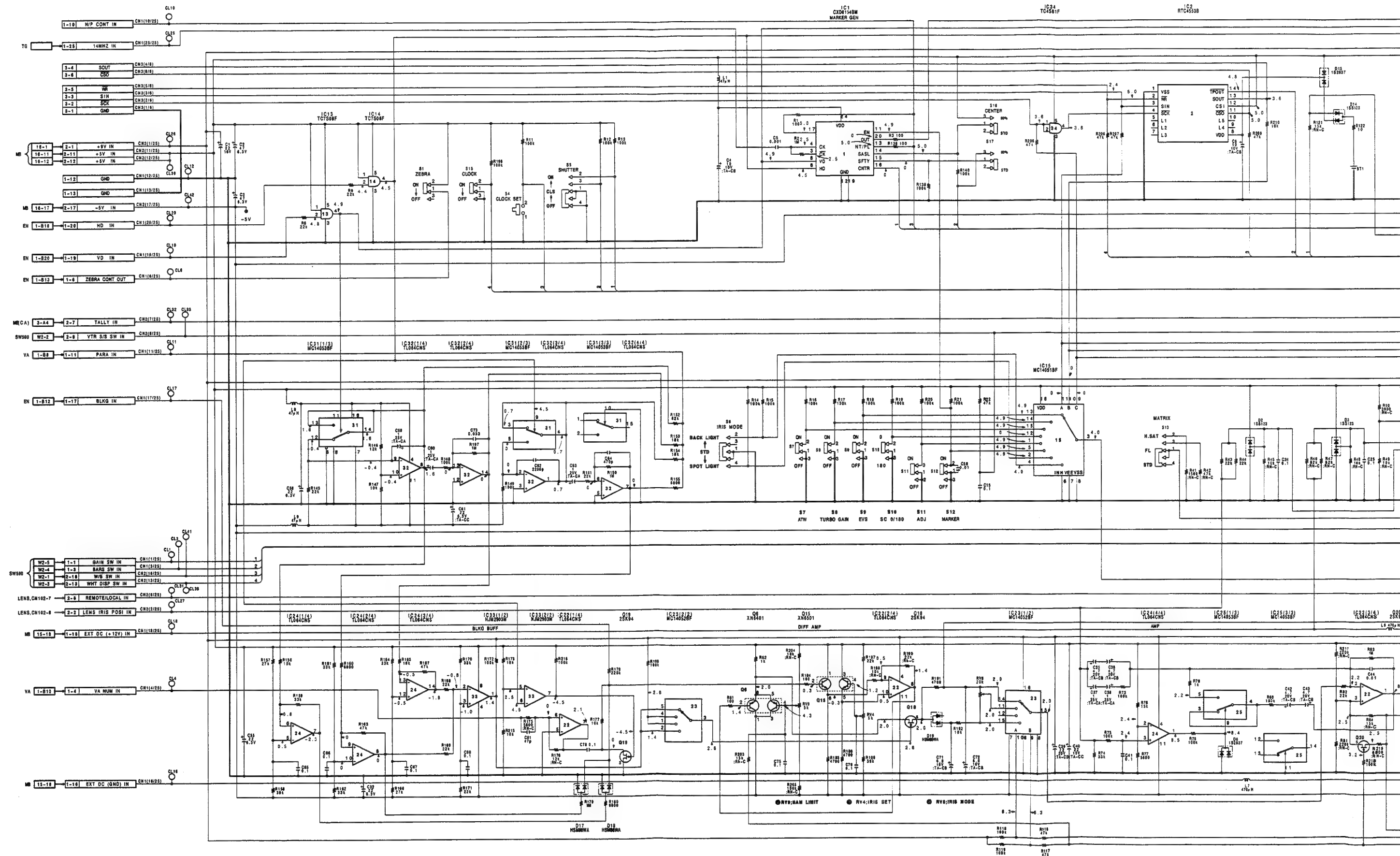
1-648-025-11 SOLDERING SIDE



AT-78

AT-78

## AT-78 BOARD



DXC-537A (J,UC)  
DXC-537AP(EK)

C-17

C-17

A

B

C

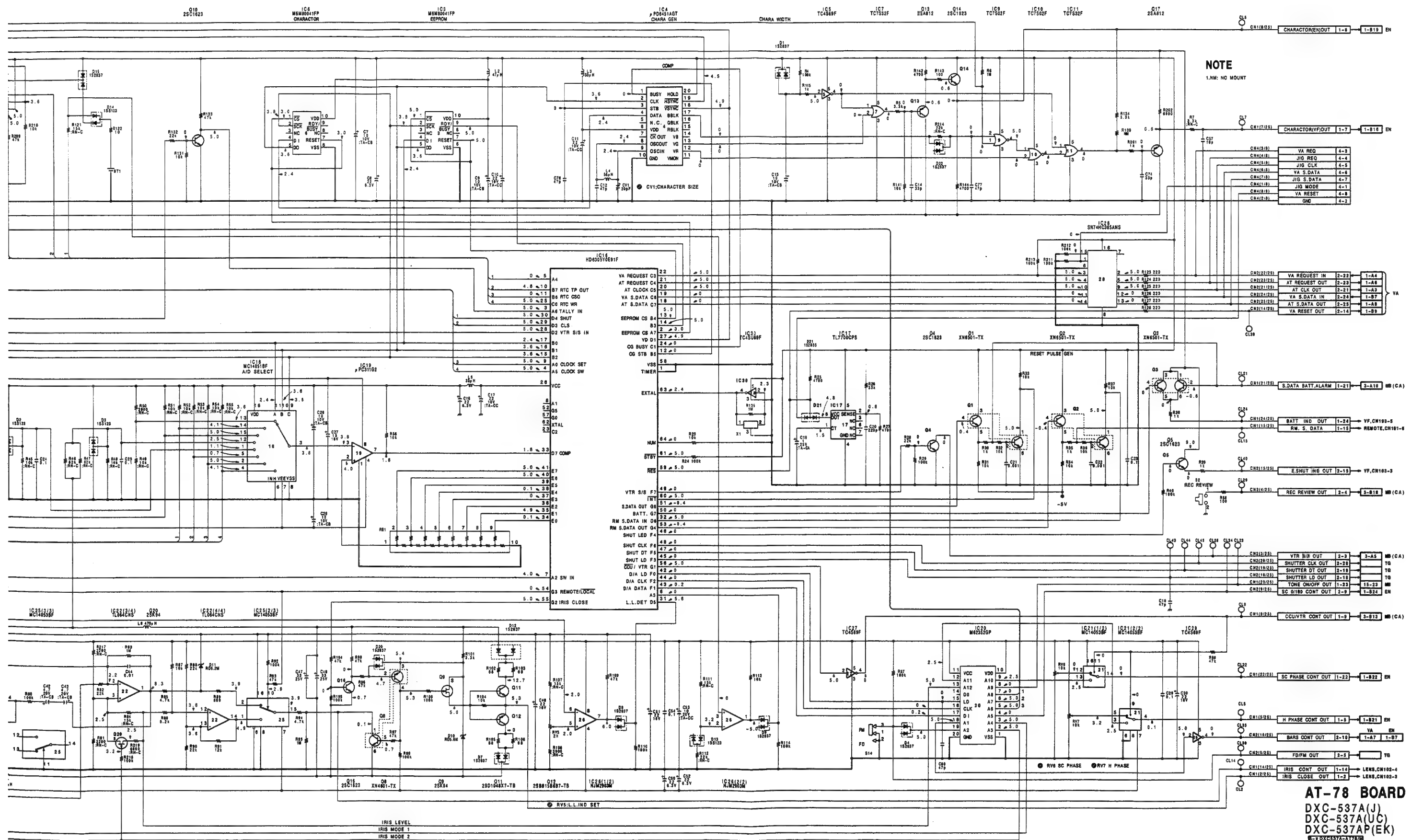
D

E

F

G

H



MB-477,CN-439,SW-590  
SW-591,SW-592,SW-622 FRAME

MB-477,CN-439,SW-590  
SW-591,SW-592,SW-622 FRAME

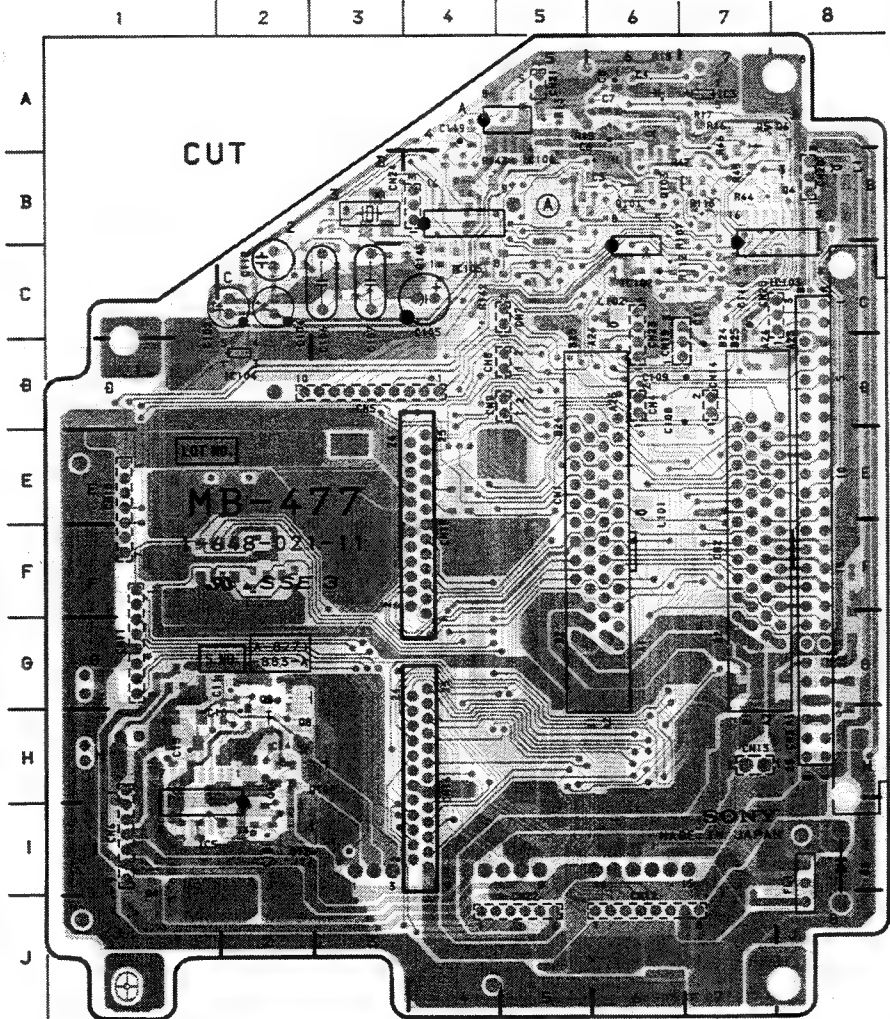
## MB-477 BOARD

SERIAL No. 10001-10293 (UC)  
30001-30281 (J)  
40001-40481 (EK)

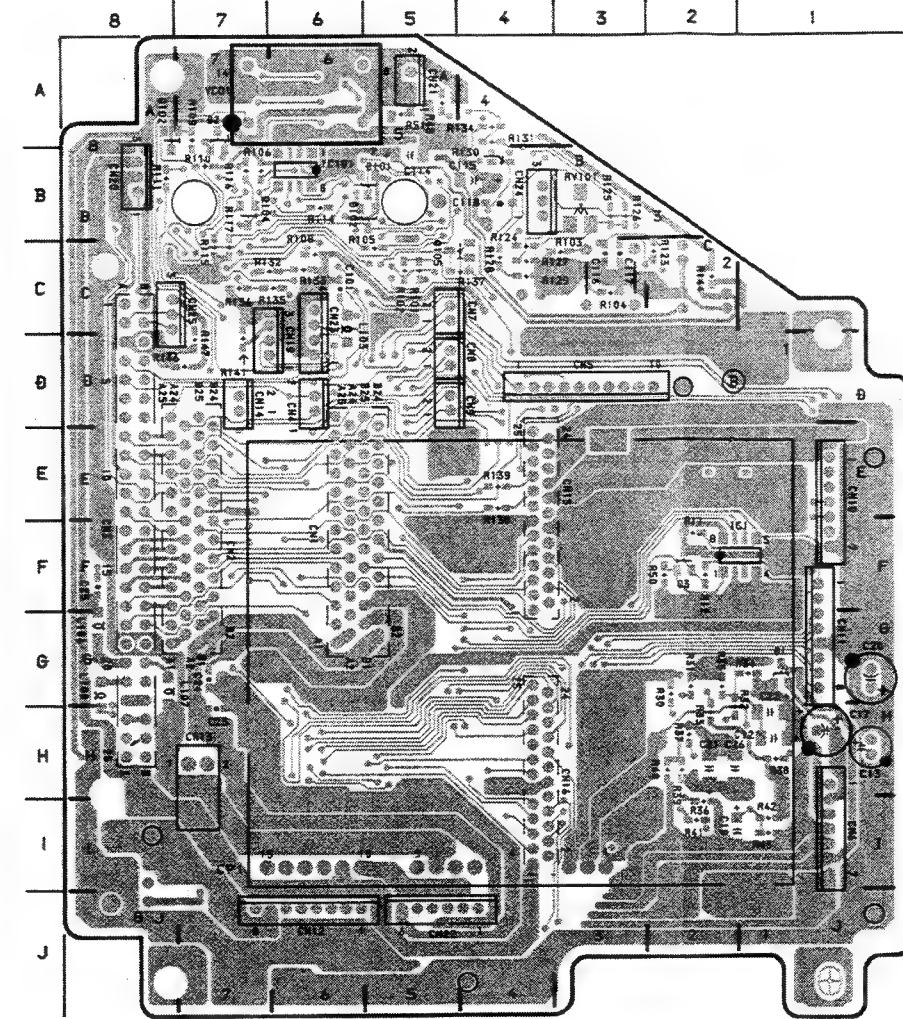
MB-477(1-648-021-11)

CN1	E-5	IC102	C-6
CN2	F-7	IC103	C-8
CN3	H-8	IC104	D-2
*CN4	D-6	IC105	C-4
*CN5	D-3	IC106	B-5
*CN6	I-1		
*CN7	C-4	L1	B-8
*CN8	D-4	L2	A-6
*CN9	D-4		
*CN10	E-1	L101	E-6
*CN11	G-1	L102	C-6
*CN12	J-6	*L103	D-5
*CN13	H-7	*L106	G-8
*CN14	D-7	*L107	G-7
CN15	F-4	*L108	G-8
CN16	H-4		
*CN19	D-6	*Q3	F-2
*CN20	B-8	Q4	B-8
*CN21	A-5	Q5	A-7
*CN22	J-5	Q6	A-8
*CN23	C-6	Q8	H-2
*CN24	B-4	Q9	G-2
*CN25	C-7	Q10	H-3
		Q11	H-2
		Q12	I-2
*D1	G-1		
*D2	A-7		
D3	I-8	Q101	B-6
D4	I-1	*Q102	A-8
		Q103	B-6
*D101	B-5	*Q104	B-7
*D102	B-6	*Q105	C-5
*FL1	I-8	*RV101	B-3
*IC1	F-2	*VCO1	A-7
IC3	A-7		
IC5	I-1	X1	B-3
*IC101	B-6		

\*;SOLDERING SIDE

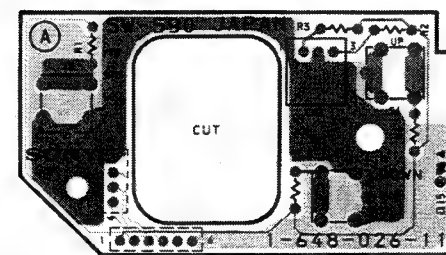


1-648-021-11 COMPONENT SIDE

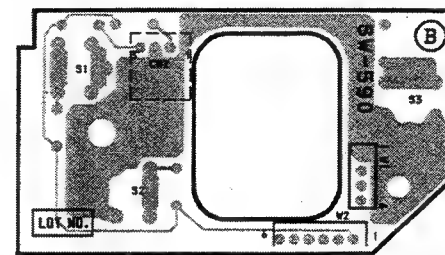


1-648-021-11 SOLDERING SIDE

## SW-590 BOARD

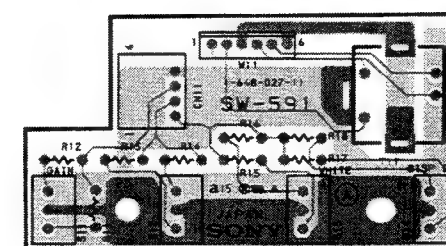


1-648-026-11 COMPONENT SIDE

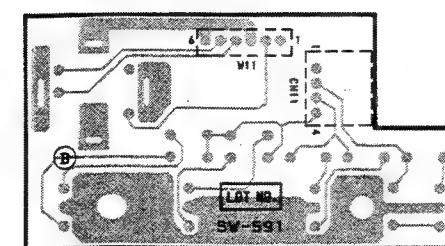


1-648-026-11 SOLDERING SIDE

## SW-591 BOARD



1-648-027-11 COMPONENT SIDE



1-648-027-11 SOLDERING SIDE

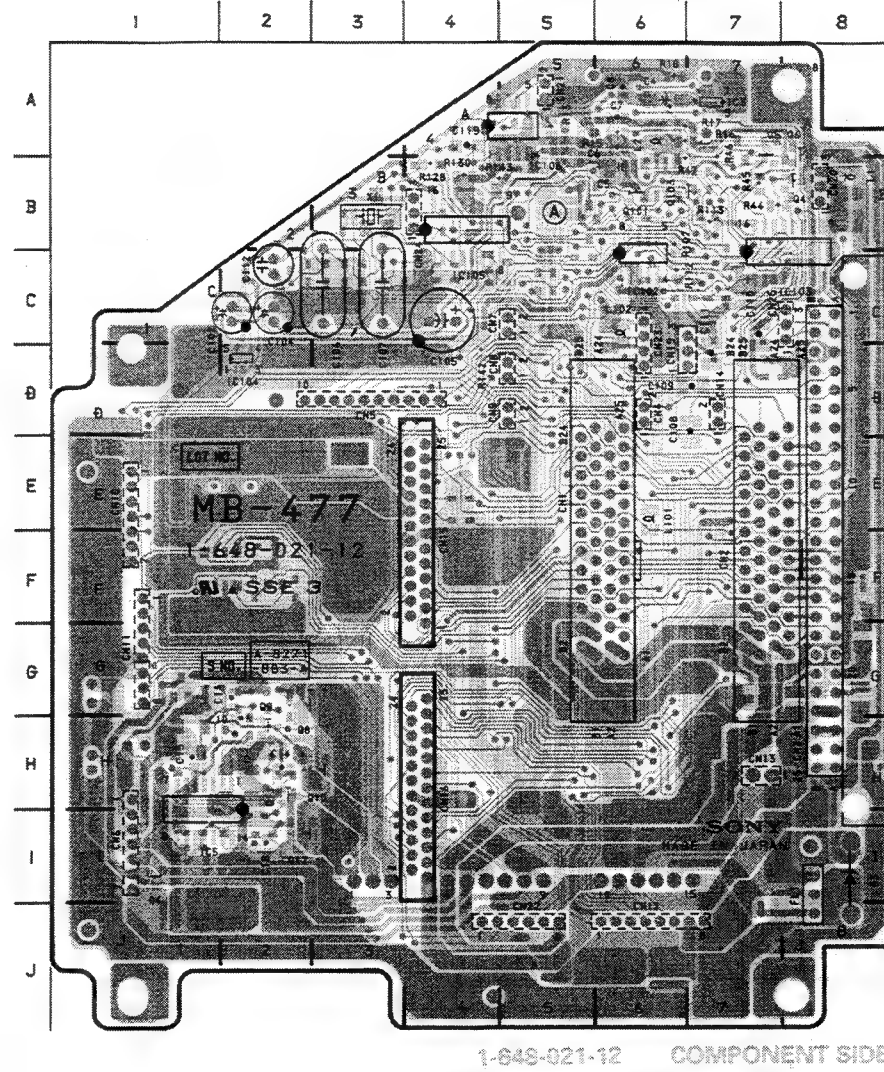


SERIAL No. 10351 and higher (UC)  
30301 and higher (J)  
40501 and higher (EK)

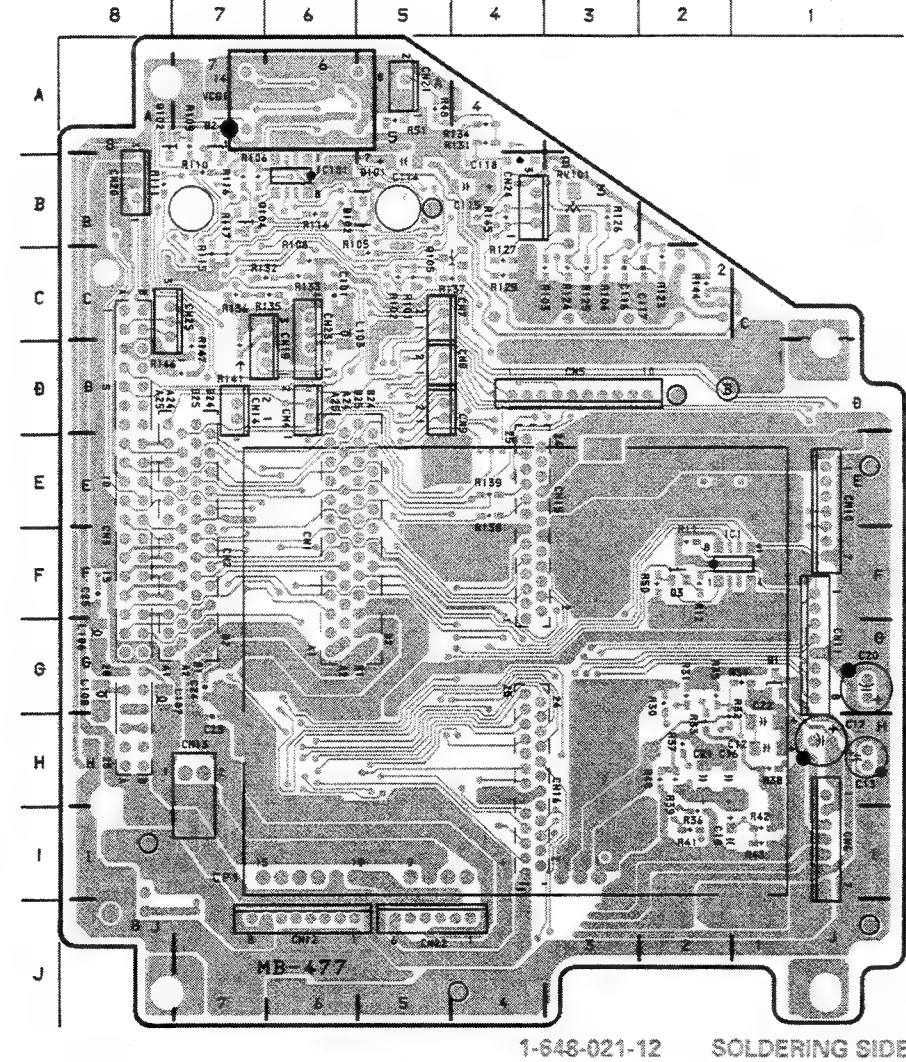
MB-477(1-648-021-12)

CN1	E-5	IC102	C-6
CN2	F-7	IC103	C-8
CN3	H-8	IC104	D-2
*CN4	D-6	IC105	C-4
*CN5	D-3	IC106	B-5
*CN6	I-1		
*CN7	C-4	L1	B-8
*CN8	D-4	L2	A-6
*CN9	D-4		
*CN10	E-1	L101	E-6
*CN11	G-1	L102	C-6
*CN12	J-6	*L103	D-5
*CN13	H-7	*L106	G-8
*CN14	D-7	*L107	G-7
CN15	F-4	*L108	G-8
CN16	H-4		
*CN19	D-6	*Q3	F-2
*CN20	B-8	Q4	B-8
*CN21	A-5	Q5	A-7
*CN22	J-5	Q6	A-8
*CN23	C-6	Q8	H-2
*CN24	B-4	Q9	G-2
*CN25	C-7	Q10	H-3
		Q11	H-2
		Q12	I-2
*D1	G-1		
*D2	A-7		
D3	I-8	Q101	B-6
D4	I-1	*Q102	A-8
		Q103	B-6
*D101	B-5	*Q104	B-7
*D102	B-6	*Q105	C-5
*FL1	I-8	*RV101	B-3
*IC1	F-2	*VCO1	A-7
IC3	A-7		
IC5	I-1	X1	B-3
*IC101	B-6		

\*;SOLDERING SIDE

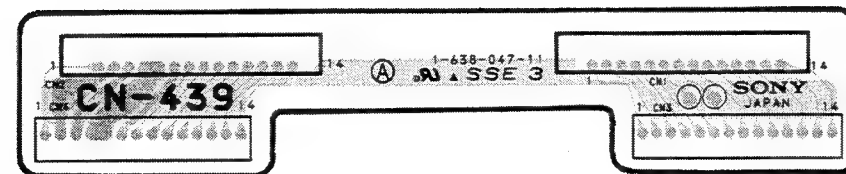


1-648-021-12 COMPONENT SIDE



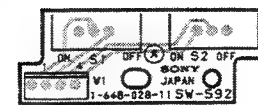
1-648-021-12 SOLDERING SIDE

CN-439 BOARD



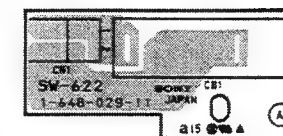
1-648-047-11 COMPONENT SIDE

SW-592 BOARD



1-648-028-11 COMPONENT SIDE

SW-622 BOARD



1-648-029-11 COMPONENT SIDE

FRAME  
MB-477 BOARD  
SW-590 BOARD  
SW-591 BOARD  
SW-592 BOARD  
SW-622 BOARD

SW-590,SW-591,MB-477  
SW-592,SW-622

FRAME

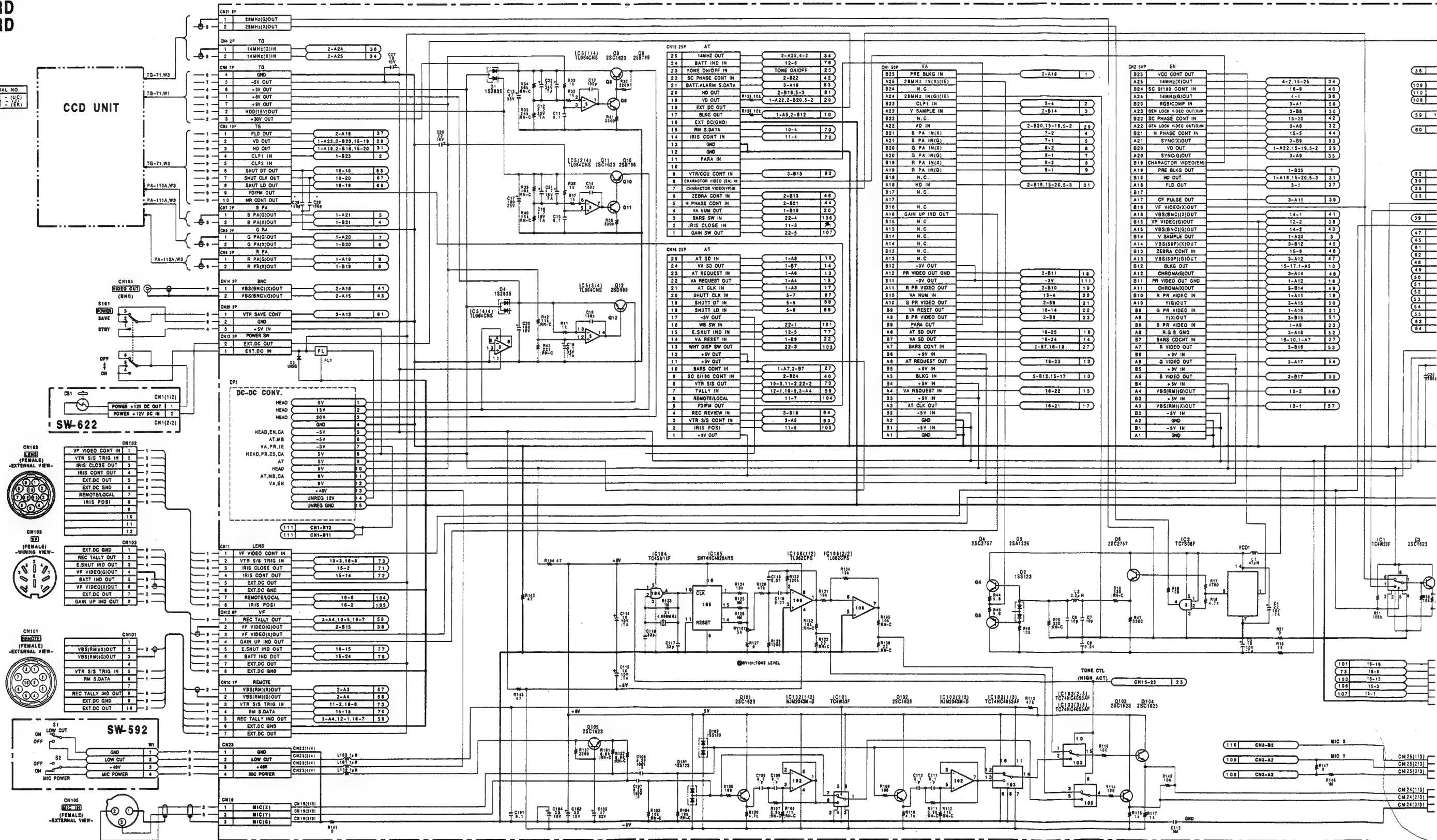
FRAME

MB-477,SW-590,SW-591  
SW-592,SW-622

NOTE

NW: NO MOUNT

REF. NO.	CHANGE INFORMATION	SERIAL NO.
C18, C29	ADD	10011 - (U) 30001 - (E)

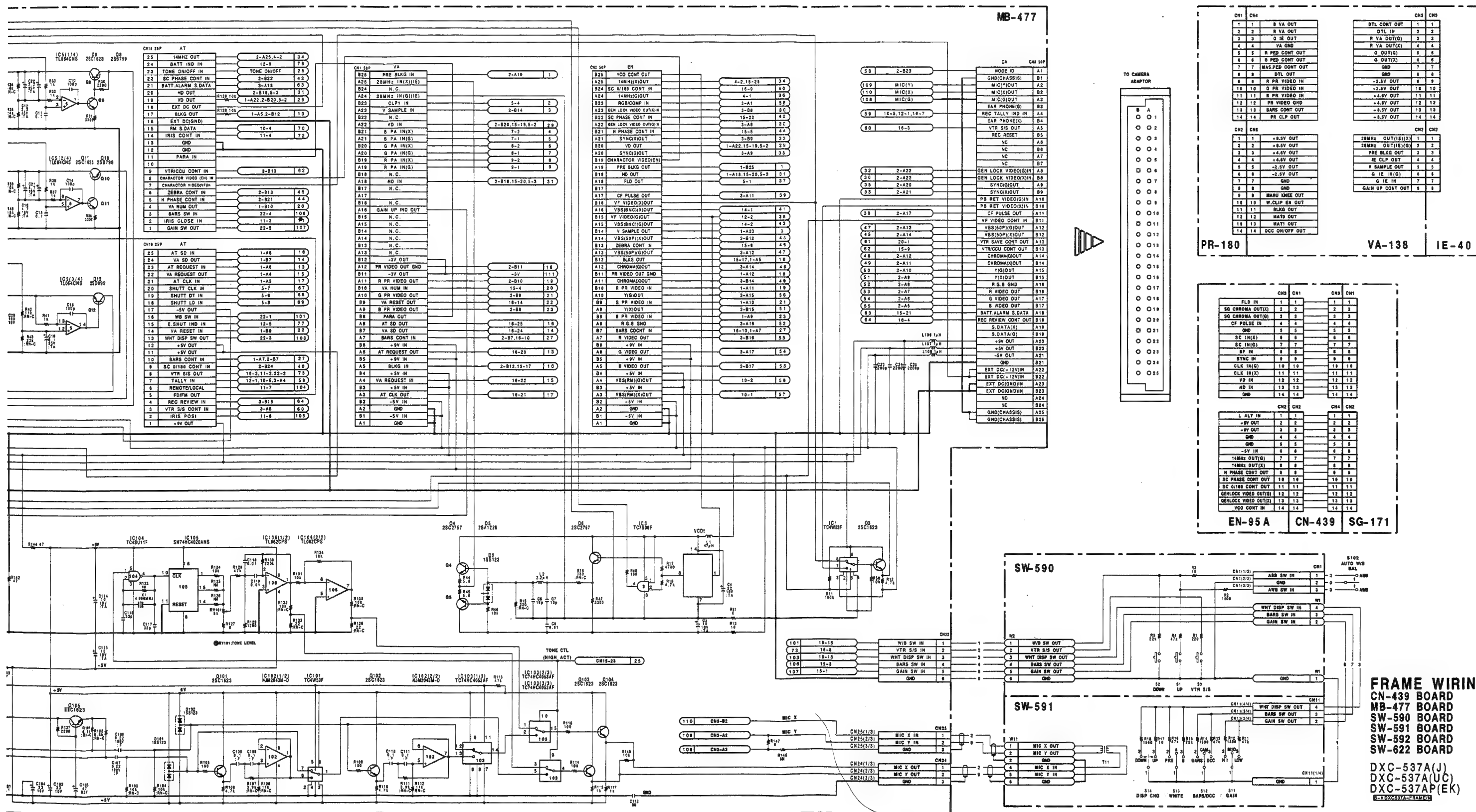


DXC-537A (J,UC)  
DXC-537AR(EK)

C-19

C-19

A R C D F F G H



## FRAME WIRING


DXC-537A(J)  
DXC-537A(UC)  
DXC-537AP(EK)  
**DXC-537A-Frame**

## SECTION D

### SPARE PARTS

#### PARTS INFORMATION

##### 1. Safety Related Component Warning

Components identified by shading marked with  on the schematic diagrams, exploded views and electrical spare parts list are critical to safe operation. Replace these components with Sony parts whose parts numbers appear as shown in this manual or in service manual supplements published by Sony.

2. Replacement Parts supplied from Sony Parts Center will sometimes have different shape and outside view from the parts which actually in use. This is due to **"accommodating the improved parts and/or engineering changes"** or **"standardization of genuine parts."** This manual's exploded view and electrical spare parts lists are indicating the parts numbers of "the standardized genuine parts at present." Regarding engineering parts and diagrams changes in our engineering department, refer to SONY service bulletins and service manual supplements.
3. The parts marked with "S" in the SP column of the exploded views and electrical spare parts list are normally required for routine service work. Orders for parts marked with "O" will be processed, but allow for additional delivery time.
4. Item with no parts number and/or no description are not stocked because they are seldom required for routine service.
5. All capacitors are in micro farads unless otherwise specified.  
All inductors are in micro henries unless otherwise specified.  
All resistors are in ohms.

## EXPLODED VIEW

### CCD BLOCK

No.	Part No.	SP Description
1	A-8268-103-A	s CCD UNIT-C537A(N1) (FOR DXC-537A;J) *1
2	A-8268-104-A	s CCD UNIT-C537AP(P) (FOR DXC-537AP) *2
3	A-8268-105-A	s CCD UNIT-C537A(N2) (FOR DXC-537A;UC) *3
4	1-547-259-11	o FILTER UNIT, OPTICAL
5	3-168-347-01	o HOLDER, CABLE
6	3-168-368-04	o PANEL, FRONT
7	3-174-682-01	s FILTER, CROSS, PORTABLE CAMERA (FOR DXC-537A;J)
8	3-180-486-01	o STOPPER, LOOSEN, MOUNT
9	3-708-651-01	o RING, BAYONET (FOR DXC-537AP)
10	3-678-629-00	s LEVER, MOUNT
11	3-688-781-02	s KNOB, FILTER
12	3-699-048-01	s CAP, MOUNT
13	3-701-506-01	s SET SCREW, DOUBLE POINT 3X4
14	3-701-822-01	s HOLDER, WIRE
15	3-708-637-01	o FILTER, CC/ND
16	3-708-637-11	o FILTER, CC/ND (FOR DXC-537A;UC, DXC-537AP)
17	3-708-637-21	o FILTER, CC/ND
18	3-708-637-31	o FILTER, CC/ND
19	3-708-638-01	o RING, BAYONET (FOR DXC-537A)
20	3-674-361-01	o SUPPORT, PCB
21	7-627-452-38	s SCREW,PRECISION +K 2X5

\*1 CCD BLOCK No. EEA xxxxx  
 \*2 CCD BLOCK No. EFA xxxxx  
 \*3 CCD BLOCK No. EGA xxxxx

How to read the CCD BLOCK No.

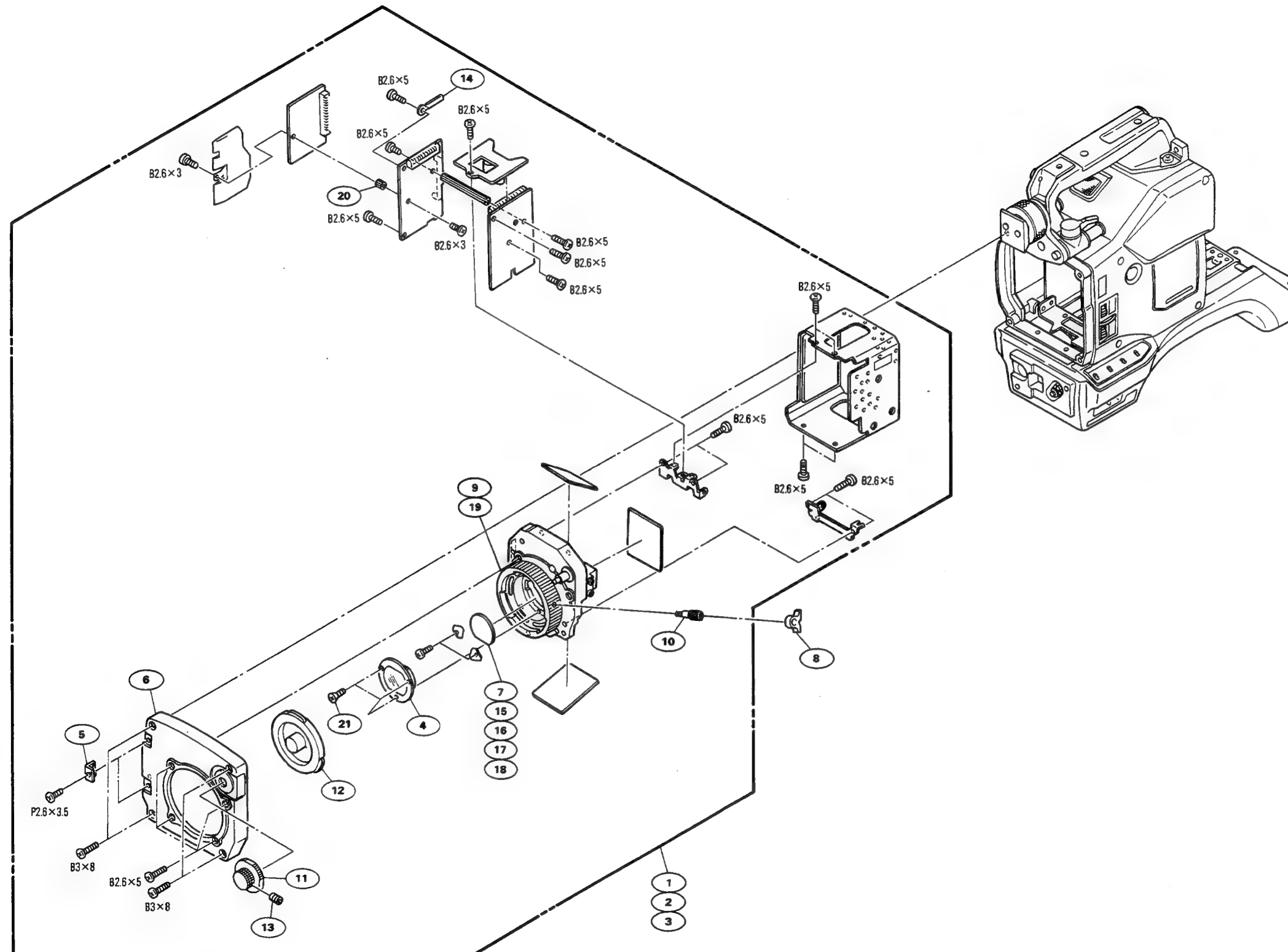
E E A xxxxx  
 ↑ ↑ ↑ ↑  
 Block number of CCD unit  
 Suffix of Spare part number  
 Model name (E:DXC-537A;J, F:DXC-537AP, G:DXC-537A;UC)  
 CCD type



CCD BLOCK

CCD BLOCK

CCD BLOCK



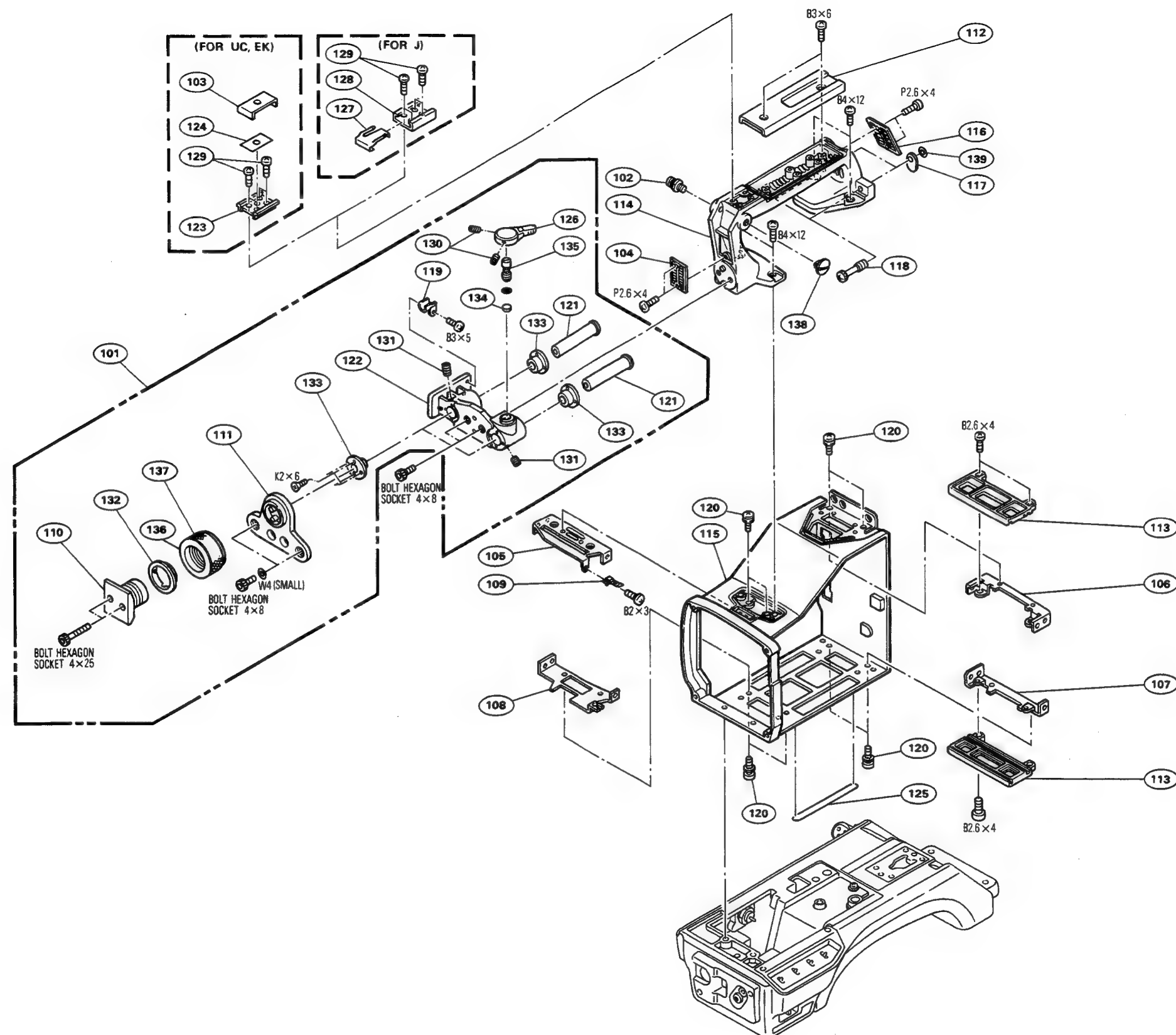
DXC-537A (J,UC)  
DXC-537AP (EK)

D-3

D-3

<b>HANDLE BLOCK</b>	<b>HANDLE BLOCK</b>
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## HANDLE BLOCK



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HANDLE BLOCK  
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No.	Part No.	SP Description
101	A-8267-235-A	o SLIDE ASSY, VF
102	X-3744-307-1	s SUSPENSION ASSY
103	2-277-468-01	o PLATE, ORNAMENTAL, CAMERA SHOE (FOR DXC-537A;UC, DXC-537AP)
104	3-168-324-02	o LID (B), HANDLE
105	3-168-330-01	o BRACKET (FRONT UPPER), PC BOARD
106	3-168-331-01	o BRACKET (REAR UPPER), PC BOARD
107	3-168-332-01	o BRACKET (REAR LOWER), PC BOARD
108	3-168-333-01	o BRACKET (FRONT LOWER), PC BOARD
109	3-168-334-01	o SPRING, AT
110	3-168-335-01	o SHOE (2), VF SLIDE
111	3-168-362-01	o TABLE (2), FIXED, VF SHOE
112	3-168-363-02	o LID (A), HANDLE
113	3-168-364-01	o RAIL, PC BOARD
114	3-168-369-02	o HANDLE
115	3-168-370-12	o CABINET
116	3-169-268-02	o LID (C), HANDLE
117	3-175-714-01	o STOPPER
118	3-175-715-02	s SCREW, FITTING, ADAPTOR
119	3-176-706-11	o CLAMP, CABLE
120	3-178-214-01	s SCREW (M3X6), +B
121	3-179-906-01	o ARM (AL)
122	3-179-910-01	o TABLE, FIXED, VF SLIDE
123	3-657-700-00	s BRACKET, ACCESSORY (FOR DXC-537A;UC, DXC-537AP)
124	3-672-213-00	o SHEET, ADHESIVE (FOR DXC-537A;UC, DXC-537AP)
125	3-672-253-11	o RUBBER, CONDUCTIVE
126	3-673-046-00	s LEVER, LOCK
127	3-688-754-01	o SPRING (FOR DXC-537A;J)
128	3-688-755-01	o SHOE, ACCESSORY (FOR DXC-537A;J)
129	3-689-039-11	s BOLT (M2X6), HOLE, HEXAGON
130	3-701-506-01	s SET SCREW, DOUBLE POINT 3X4
131	3-701-508-00	s SET SCREW, DOUBLE POINT 3X6
132	3-710-018-01	o COLLAR, SLIDE
133	3-711-790-01	o SPACER (A)
134	3-711-793-01	o CUSHION (STOPPER)
135	3-711-794-01	o PIN, STOPPER
136	3-711-795-11	o RING (B), LOCK
137	3-720-919-01	o RUBBER, LOCK RING
138	3-725-907-01	s BUSHING, BLIND
139	3-892-114-00	s RING (DIA. 3), O



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CHASSIS (1) BLOCK  
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No.	Part No.	SP Description
201	A-7612-352-A	s SHOE (A) ASSY, V
202	A-8267-236-A	o CHASSIS ASSY, BASE
203	X-3166-928-1	s SHOE ASSY, STOPPER
204	X-3166-984-1	o PANEL ASSY, SIDE SW
205	1-552-852-00	s SWITCH, TOGGLE "POWER"
206	1-554-486-00	s SWITCH, TOGGLE "AUTO W/B BAL"
207	1-561-320-00	s CONNECTOR, 8P FEMALE "VF"
208	1-561-781-21	s CONNECTOR, BNC "VIDEO OUT"
209	1-562-221-21	s CONNECTOR, 12P FEMALE "LENS"
210	1-562-782-21	s CONNECTOR, 10P FEMALE "REMOTE"
211	1-750-551-11	o CONNECTOR, 3P FEMALE "MIC"
212	1-948-168-11	o HARNESS (CN)
213	3-167-445-02	s KNOB, SWITCH
214	3-168-337-02	s FOOT
215	3-168-342-01	o LABEL (LENS)
216	3-168-355-01	o PLATE, CN
217	3-168-360-01	o PANEL, FRONT SW
218	3-169-037-01	o FILTER
219	3-175-715-02	s SCREW, FITTING, ADAPTOR
220	3-179-903-01	o BOX, CONNECTOR
221	3-179-904-01	o LABEL, LEFT, SW
222	3-179-908-01	o LABEL (POWER)
223	3-180-055-01	o COVER (2), BOTTOM
224	3-180-207-01	s PAD, SHOULDER
225	3-566-903-00	s SPRING
226	3-669-117-21	o SPACER, MOTOR
227	3-672-221-02	s PACKING, CONTROL
228	3-676-244-00	s COVER, SWITCH
229	3-687-116-01	o WASHER (4), STOPPER
230	3-710-002-01	o BRACKET
231	3-711-703-01	o STOPPER
232	3-716-391-01	o WEDGE, MOUNTING
233	3-729-064-01	o GUARD (A), CAMERA SHOE
234	3-729-065-01	s SHOE (A), CAMERA
235	7-627-454-37	s SCREW, PRECISION +K 2.6X5
236	7-627-556-37	s SCREW, PRECISION +P2.6X4 TYPE 1
237	7-627-556-58	s SCREW, PRECISION +P2.6X5

## CHASSIS (1) BLOCK

[illegible]

D-7

## CHASSIS (2) BLOCK

This diagram is an exploded view of a mechanical assembly, likely a piece of industrial equipment. It shows the main housing and various internal components, including a control panel, a display or indicator, and a base unit. The parts are numbered with callouts, and some are labeled with material specifications like W2.6 (POLY), W2.6 (NYLON), and BTP2.6x6. The diagram includes a detailed view of the control panel assembly in the top left corner, showing the mounting of the display and the control panel itself. The main assembly is shown in the center, with the control panel being installed into the housing. The base unit is shown in the bottom right corner, with the control panel being installed into it. The diagram is a technical drawing, and it is used to show the relationship between the different parts of the assembly and how they are assembled.

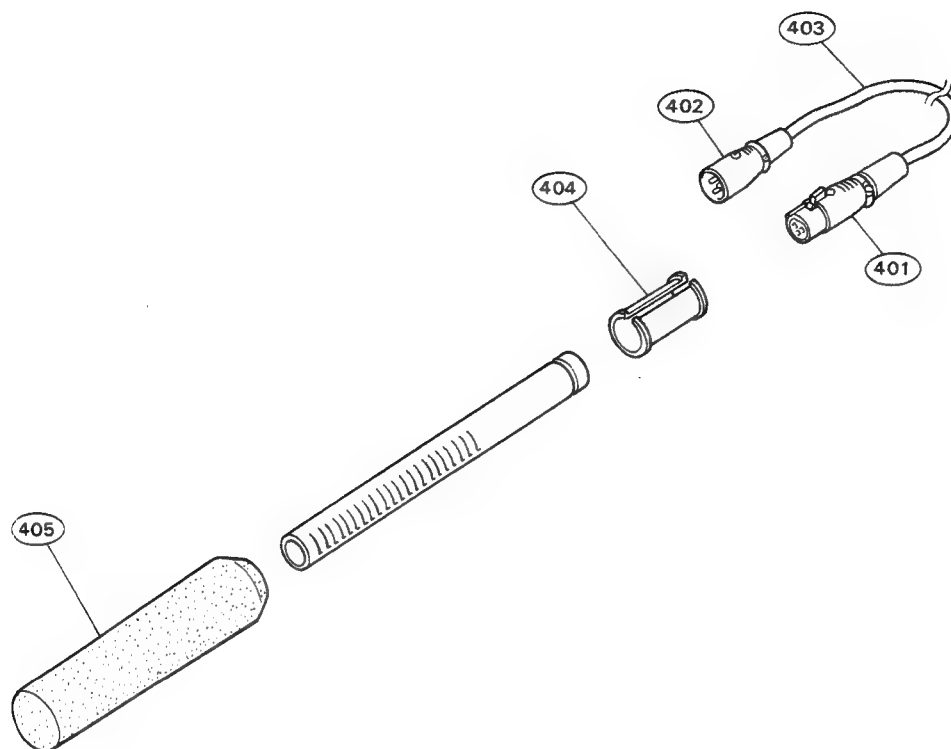
D-8

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CHASSIS (2) BLOCK  
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No.	Part No.	SP Description
301	A-7515-288-A	o MOUNTED CIRCUIT BOARD, SG-171 (N) (FOR DXC-537A)
302	A-7515-289-A	o MOUNTED CIRCUIT BOARD, SG-171 (P) (FOR DXC-537AP)
303	A-8267-238-C	o PLATE (R) ASSY, SIDE (FOR DXC-537A;UC, DXC-537AP)
304	A-8267-240-B	o PLATE (L) ASSY, SIDE
305	A-8267-256-C	o PLATE (R) ASSY, SIDE (FOR DXC-537A;J)
306	A-8271-883-A	o MOUNTED CIRCUIT BOARD, MB-477 (N) (FOR DXC-537A)
307	A-8271-903-A	o MOUNTED CIRCUIT BOARD, AT-78
308	A-8271-904-A	o MOUNTED CIRCUIT BOARD, IE-40 (N) (FOR DXC-537A)
309	A-8271-905-A	o MOUNTED CIRCUIT BOARD, PR-180 (FOR DXC-537A;UC)
310	A-8271-906-A	o MOUNTED CIRCUIT BOARD, VA-138
311	A-8271-909-A	o MOUNTED CIRCUIT BOARD, MB-477 (P) (FOR DXC-537AP)
312	A-8271-910-A	o MOUNTED CIRCUIT BOARD, PR-180 (FOR DXC-537AP)
313	A-8271-911-A	o MOUNTED CIRCUIT BOARD, IE-40 (P) (FOR DXC-537AP)
314	A-8271-912-A	o MOUNTED CIRCUIT BOARD, PR-180 (FOR DXC-537A;J)
315	A-8271-936-A	o MOUNTED CIRCUIT BOARD, EN-95A (U) (FOR DXC-537A;UC)
316	A-8271-937-A	o MOUNTED CIRCUIT BOARD, EN-95A (FOR DXC-537A;J)
317	A-8271-938-A	o MOUNTED CIRCUIT BOARD, EN-95A (P) (FOR DXC-537AP)
318	X-3167-005-2	o PLATE ASSY
319	1-550-414-31	s HOLDER, BATTERY
320	1-590-489-11	s CABLE, FLAT 25P
321	2-280-622-41	o SUPPORT (M3), HEXAGON
322	3-168-353-01	o BRACKET (UPPER), AT
323	3-168-354-01	o BRACKET (LOWER), AT
324	3-174-408-01	o LABEL, FILTER (FOR DXC-537A;J)
325	3-176-706-11	o CLAMP, CABLE
326	3-178-213-31	s SCREW (M3X12), +B
327	3-178-213-51	s SCREW (M3X20), +B
328	3-179-896-01	o PLATE, SHIELD, VA
329	3-179-897-01	o SUPPORT
330	3-179-899-01	o LABEL (IRIS)
331	3-179-900-01	o LABEL (ATW)
332	3-179-905-02	o KNOB, SLIDE
333	3-179-911-02	o LID, SLIDE
334	3-179-912-02	o GUIDE, KNOB
335	3-179-913-01	s PAD, SIDE
336	3-179-914-01	o PLATE, SHIELD, AT
337	3-180-487-01	o PLATE, SHIELD, FC
338	3-672-221-02	s PACKING, CONTROL
339	3-672-253-11	o RUBBER, CONDUCTIVE
340	3-674-361-01	o SUPPORT, PC BOARD
341	3-678-607-02	o LABEL, FILTER (FOR DXC-537A;UC, DXC-537AP)
342	3-717-900-01	s KNOB (A) (TC), SW

## MICROPHONE AND CABLE

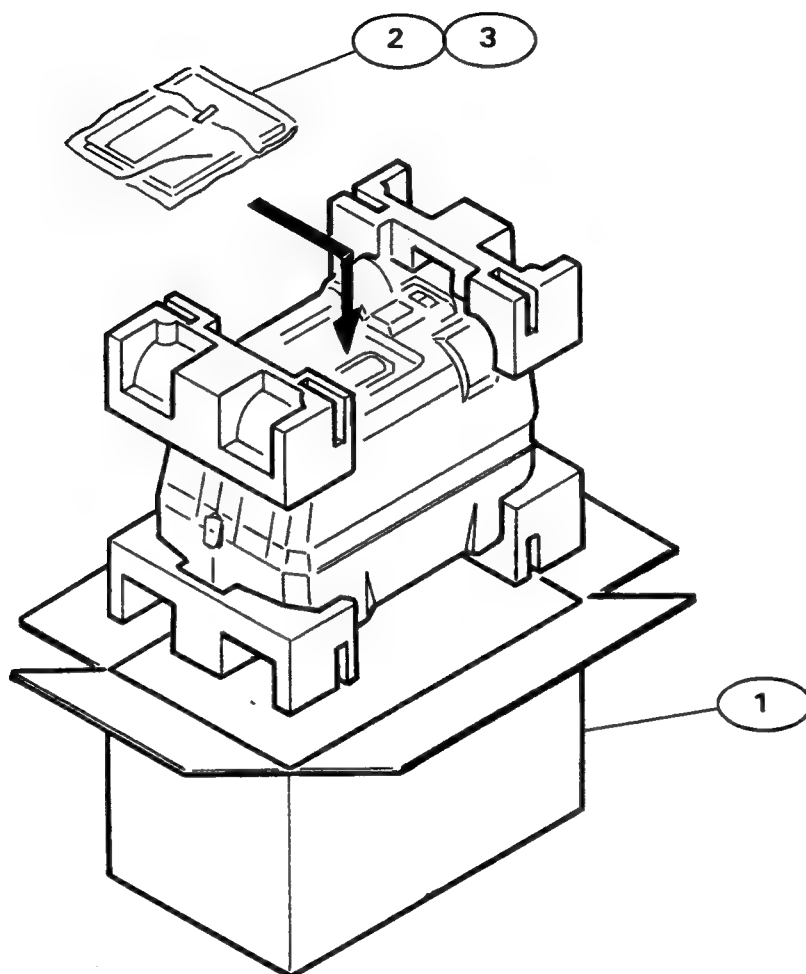


ELECTRET CONDENSER MICROPHONE: ECM-670  
MICROPHONE CABLE : EC-0.3C2

### MICROPHONE AND CABLE

No.	Part No.	SP Description
401	1-508-083-21	o CONNECTOR, 3P FEMALE
402	1-508-084-31	o CONNECTOR, 3P MALE
403	1-551-545-00	s CORD, MICROPHONE
404	3-179-882-01	o SPACER, MICROPHONE
405	3-708-636-01	s SCREEN, WIND

## PACKING MATERIAL AND ACCESSORIES

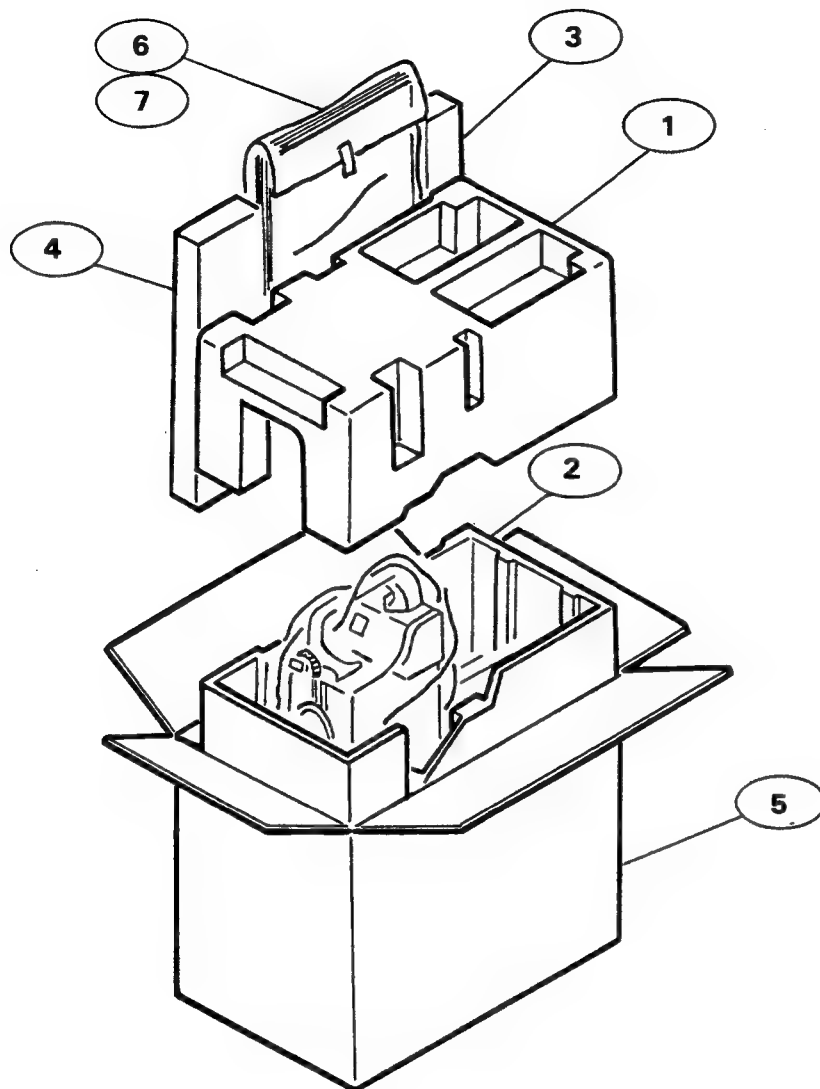


### DXC-537AK/537APK

No.	Part No.	SP Description
1	3-179-884-01	o INDIVIDUAL CARTON (FOR DXC-537AK)
	3-179-885-01	o INDIVIDUAL CARTON (FOR DXC-537APK)
2	3-756-770-01	s INSTRUCTION MANUAL (JAPANESE)
	3-756-770-11	s INSTRUCTION MANUAL (ENGLISH)
	3-756-770-41	s INSTRUCTION MANUAL (FRENCH)
	3-756-770-51	s INSTRUCTION MANUAL (GERMAN)
	3-756-770-61	s INSTRUCTION MANUAL (ITALIAN)
	3-756-770-71	s INSTRUCTION MANUAL (CHINESE)
	3-756-771-01	s INSTRUCTION MANUAL (JAPANESE)
3	3-764-889-01	o CHART, ADJUSTMENT

### DXC-537AL/537APL

No.	Part No.	SP Description
1	3-179-890-01	o INDIVIDUAL CARTON (FOR DXC-537AL)
	3-179-891-01	o INDIVIDUAL CARTON (FOR DXC-537APL)
2	3-756-770-01	s INSTRUCTION MANUAL (JAPANESE)
	3-756-770-11	s INSTRUCTION MANUAL (ENGLISH)
	3-756-770-41	s INSTRUCTION MANUAL (FRENCH)
	3-756-770-51	s INSTRUCTION MANUAL (GERMAN)
	3-756-770-61	s INSTRUCTION MANUAL (ITALIAN)
	3-756-770-71	s INSTRUCTION MANUAL (CHINESE)
	3-756-771-01	s INSTRUCTION MANUAL (JAPANESE)
3	3-764-889-01	o CHART, ADJUSTMENT



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DXC-537AH/537APH  
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No.	Part No.	SP Description
1	3-171-972-03	o CUSHION (UPPER)
2	3-171-973-01	o CUSHION (LOWER)
3	3-180-067-01	o SPACER (A)
4	3-180-068-01	o SPACER (B)
5	3-180-070-01	o INDIVIDUAL CARTON (FOR DXC-537AH)
	3-180-069-01	o INDIVIDUAL CARTON (FOR DXC-537APH)
6	3-756-770-01	s INSTRUCTION MANUAL (JAPANESE)
	3-756-770-11	s INSTRUCTION MANUAL (ENGLISH)
	3-756-770-41	s INSTRUCTION MANUAL (FRENCH)
	3-756-770-51	s INSTRUCTION MANUAL (GERMAN)
	3-756-770-61	s INSTRUCTION MANUAL (ITALIAN)
	3-756-770-71	s INSTRUCTION MANUAL (CHINESE)
	3-756-771-01	s INSTRUCTION MANUAL (JAPANESE)
7	3-764-889-01	o CHART, ADJUSTMENT

## ELECTRICAL PARTS

### CAPACITOR, CHIP CERAMIC

#### Part No. SP Description

1-163-082-00	s	CAP, CHIP CERAMIC	0.5pF	+-0.25pF	50V
1-163-083-00	s	CAP, CHIP CERAMIC	1pF	+-0.25pF	50V
1-163-084-00	s	CAP, CHIP CERAMIC	1.5pF	+-0.25pF	50V
1-163-085-00	s	CAP, CHIP CERAMIC	2pF	+-0.25pF	50V
1-163-811-11	s	CAP, CHIP CERAMIC	2.5pF	+-0.25pF	50V
1-163-086-00	s	CAP, CHIP CERAMIC	3pF	+-0.25pF	50V
1-163-087-00	s	CAP, CHIP CERAMIC	4pF	+-0.25pF	50V
1-163-088-00	s	CAP, CHIP CERAMIC	5pF	+-0.25pF	50V
1-163-089-00	s	CAP, CHIP CERAMIC	6pF	+-0.25pF	50V
1-163-090-00	s	CAP, CHIP CERAMIC	7pF	+-0.25pF	50V
1-163-091-00	s	CAP, CHIP CERAMIC	8pF	+-0.25pF	50V
1-163-092-00	s	CAP, CHIP CERAMIC	9pF	+-0.25pF	50V
1-163-093-00	s	CAP, CHIP CERAMIC	10pF	+-0.25pF	50V
1-163-094-00	s	CAP, CHIP CERAMIC	11pF	5%	50V
1-163-095-00	s	CAP, CHIP CERAMIC	12pF	5%	50V
1-163-096-00	s	CAP, CHIP CERAMIC	13pF	5%	50V
1-163-097-00	s	CAP, CHIP CERAMIC	15pF	5%	50V
1-163-098-00	s	CAP, CHIP CERAMIC	16pF	5%	50V
1-163-099-00	s	CAP, CHIP CERAMIC	18pF	5%	50V
1-163-100-00	s	CAP, CHIP CERAMIC	20pF	5%	50V
1-163-101-00	s	CAP, CHIP CERAMIC	22pF	5%	50V
1-163-102-00	s	CAP, CHIP CERAMIC	24pF	5%	50V
1-163-103-00	s	CAP, CHIP CERAMIC	27pF	5%	50V
1-163-104-00	s	CAP, CHIP CERAMIC	30pF	5%	50V
1-163-105-00	s	CAP, CHIP CERAMIC	33pF	5%	50V
1-163-106-00	s	CAP, CHIP CERAMIC	36pF	5%	50V
1-163-107-00	s	CAP, CHIP CERAMIC	39pF	5%	50V
1-163-108-00	s	CAP, CHIP CERAMIC	43pF	5%	50V
1-163-109-00	s	CAP, CHIP CERAMIC	47pF	5%	50V
1-163-110-00	s	CAP, CHIP CERAMIC	51pF	5%	50V
1-163-111-00	s	CAP, CHIP CERAMIC	56pF	5%	50V
1-163-112-00	s	CAP, CHIP CERAMIC	62pF	5%	50V
1-163-113-00	s	CAP, CHIP CERAMIC	68pF	5%	50V
1-163-114-00	s	CAP, CHIP CERAMIC	75pF	5%	50V
1-163-115-00	s	CAP, CHIP CERAMIC	82pF	5%	50V
1-163-116-00	s	CAP, CHIP CERAMIC	91pF	5%	50V
1-163-117-00	s	CAP, CHIP CERAMIC	100pF	5%	50V
1-163-118-00	s	CAP, CHIP CERAMIC	110pF	5%	50V
1-163-119-00	s	CAP, CHIP CERAMIC	120pF	5%	50V
1-163-120-00	s	CAP, CHIP CERAMIC	130pF	5%	50V
1-163-121-00	s	CAP, CHIP CERAMIC	150pF	5%	50V
1-163-122-00	s	CAP, CHIP CERAMIC	160pF	5%	50V
1-163-123-00	s	CAP, CHIP CERAMIC	180pF	5%	50V
1-163-124-00	s	CAP, CHIP CERAMIC	200pF	5%	50V
1-163-125-00	s	CAP, CHIP CERAMIC	220pF	5%	50V
1-163-126-00	s	CAP, CHIP CERAMIC	240pF	5%	50V
1-163-127-00	s	CAP, CHIP CERAMIC	270pF	5%	50V
1-163-128-00	s	CAP, CHIP CERAMIC	300pF	5%	50V
1-163-129-00	s	CAP, CHIP CERAMIC	330pF	5%	50V
1-163-130-00	s	CAP, CHIP CERAMIC	360pF	5%	50V

### CAPACITOR, CHIP CERAMIC

#### Part No. SP Description

1-163-131-00	s	CAP, CHIP CERAMIC	390pF	5%	50V
1-163-132-00	s	CAP, CHIP CERAMIC	430pF	5%	50V
1-163-133-00	s	CAP, CHIP CERAMIC	470pF	5%	50V
1-163-134-00	s	CAP, CHIP CERAMIC	510pF	5%	50V
1-163-135-00	s	CAP, CHIP CERAMIC	560pF	5%	50V
1-163-136-00	s	CAP, CHIP CERAMIC	620pF	5%	50V
1-163-137-00	s	CAP, CHIP CERAMIC	680pF	5%	50V
1-163-138-00	s	CAP, CHIP CERAMIC	750pF	5%	50V
1-163-139-00	s	CAP, CHIP CERAMIC	820pF	5%	50V
1-163-140-00	s	CAP, CHIP CERAMIC	910pF	5%	50V
1-163-141-00	s	CAP, CHIP CERAMIC	1000pF	5%	50V
1-163-142-00	s	CAP, CHIP CERAMIC	1100pF	5%	50V
1-163-143-00	s	CAP, CHIP CERAMIC	1200pF	5%	50V
1-163-144-00	s	CAP, CHIP CERAMIC	1300pF	5%	50V
1-163-145-00	s	CAP, CHIP CERAMIC	1500pF	10%	50V
1-163-012-00	s	CAP, CHIP CERAMIC	1800pF	10%	50V
1-164-161-11	s	CAP, CHIP CERAMIC	2200pF	10%	100V
1-163-014-00	s	CAP, CHIP CERAMIC	2700pF	10%	50V
1-164-182-11	s	CAP, CHIP CERAMIC	3300pF	10%	100V
1-163-016-00	s	CAP, CHIP CERAMIC	3900pF	10%	50V
1-163-017-00	s	CAP, CHIP CERAMIC	4700pF	10%	50V
1-163-018-00	s	CAP, CHIP CERAMIC	5600pF	10%	50V
1-163-019-00	s	CAP, CHIP CERAMIC	6800pF	10%	50V
1-163-020-00	s	CAP, CHIP CERAMIC	8200pF	10%	50V
1-164-232-11	s	CAP, CHIP CERAMIC	0.01	10%	100V
1-163-022-00	s	CAP, CHIP CERAMIC	0.012	10%	50V
1-163-023-00	s	CAP, CHIP CERAMIC	0.015	10%	50V
1-163-024-00	s	CAP, CHIP CERAMIC	0.018	10%	50V
1-163-033-00	s	CAP, CHIP CERAMIC	0.022	50V	
1-163-986-00	s	CAP, CHIP CERAMIC	0.027	10%	25V
1-163-034-00	s	CAP, CHIP CERAMIC	0.033	50V	
1-162-587-11	s	CAP, CHIP CERAMIC	0.039	10%	25V
1-163-035-00	s	CAP, CHIP CERAMIC	0.047	50V	
1-164-343-11	s	CAP, CHIP CERAMIC	0.056	10%	25V
1-163-036-00	s	CAP, CHIP CERAMIC	0.068	50V	
1-164-345-11	s	CAP, CHIP CERAMIC	0.082	10%	25V
1-163-038-00	s	CAP, CHIP CERAMIC	0.1	50V	
1-164-492-11	s	CAP, CHIP CERAMIC	0.15	10%	16V
1-164-222-11	s	CAP, CHIP CERAMIC	0.22	25V	
1-164-336-11	s	CAP, CHIP CERAMIC	0.33	25V	
1-164-005-11	s	CAP, CHIP CERAMIC	0.47	25V	
1-164-700-11	s	CAP, CHIP CERAMIC	0.68	16V	



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RESISTOR, CHIP  
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Part No. SP Description

1-216-295-00	s RES, CHIP	0	5%	1/10W
1-216-298-00	s RES, CHIP	2.2	5%	1/10W
1-216-302-00	s RES, CHIP	2.7	5%	1/10W
1-216-304-11	s RES, CHIP	3.3	5%	1/10W
1-216-306-11	s RES, CHIP	3.9	5%	1/10W
1-216-308-00	s RES, CHIP	4.7	5%	1/10W
1-216-309-00	s RES, CHIP	5.6	5%	1/10W
1-216-311-00	s RES, CHIP	6.8	5%	1/10W
1-216-313-00	s RES, CHIP	8.2	5%	1/10W
1-216-001-00	s RES, CHIP	10	5%	1/10W
1-216-003-11	s RES, CHIP	12	5%	1/10W
1-216-005-00	s RES, CHIP	15	5%	1/10W
1-216-007-00	s RES, CHIP	18	5%	1/10W
1-216-009-00	s RES, CHIP	22	5%	1/10W
1-216-011-00	s RES, CHIP	27	5%	1/10W
1-216-013-00	s RES, CHIP	33	5%	1/10W
1-216-015-00	s RES, CHIP	39	5%	1/10W
1-216-017-00	s RES, CHIP	47	5%	1/10W
1-216-019-00	s RES, CHIP	56	5%	1/10W
1-216-021-00	s RES, CHIP	68	5%	1/10W
1-216-023-00	s RES, CHIP	82	5%	1/10W
1-216-025-00	s RES, CHIP	100	5%	1/10W
1-216-027-00	s RES, CHIP	120	5%	1/10W
1-216-029-00	s RES, CHIP	150	5%	1/10W
1-216-031-00	s RES, CHIP	180	5%	1/10W
1-216-033-00	s RES, CHIP	220	5%	1/10W
1-216-035-00	s RES, CHIP	270	5%	1/10W
1-216-037-00	s RES, CHIP	330	5%	1/10W
1-216-039-00	s RES, CHIP	390	5%	1/10W
1-216-041-00	s RES, CHIP	470	5%	1/10W
1-216-043-00	s RES, CHIP	560	5%	1/10W
1-216-045-00	s RES, CHIP	680	5%	1/10W
1-216-047-00	s RES, CHIP	820	5%	1/10W
1-216-049-00	s RES, CHIP	1k	5%	1/10W
1-216-051-00	s RES, CHIP	1.2k	5%	1/10W
1-216-053-00	s RES, CHIP	1.5k	5%	1/10W
1-216-055-00	s RES, CHIP	1.8k	5%	1/10W
1-216-057-00	s RES, CHIP	2.2k	5%	1/10W
1-216-059-00	s RES, CHIP	2.7k	5%	1/10W
1-216-061-00	s RES, CHIP	3.3k	5%	1/10W
1-216-063-00	s RES, CHIP	3.9k	5%	1/10W
1-216-065-00	s RES, CHIP	4.7k	5%	1/10W
1-216-067-00	s RES, CHIP	5.6k	5%	1/10W
1-216-069-00	s RES, CHIP	6.8k	5%	1/10W
1-216-071-00	s RES, CHIP	8.2k	5%	1/10W
1-216-073-00	s RES, CHIP	10k	5%	1/10W
1-216-075-00	s RES, CHIP	12k	5%	1/10W
1-216-077-00	s RES, CHIP	15k	5%	1/10W
1-216-079-00	s RES, CHIP	18k	5%	1/10W
1-216-081-00	s RES, CHIP	22k	5%	1/10W
1-216-083-00	s RES, CHIP	27k	5%	1/10W
1-216-085-00	s RES, CHIP	33k	5%	1/10W
1-216-748-11	s RES, CHIP	39k	5%	1/10W
1-216-089-00	s RES, CHIP	47k	5%	1/10W
1-216-091-00	s RES, CHIP	56k	5%	1/10W

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RESISTOR, CHIP  
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Part No. SP Description

1-216-093-00	s RES, CHIP	68k	5%	1/10W
1-216-095-00	s RES, CHIP	82k	5%	1/10W
1-216-097-00	s RES, CHIP	100k	5%	1/10W
1-216-099-00	s RES, CHIP	120k	5%	1/10W
1-216-101-00	s RES, CHIP	150k	5%	1/10W
1-216-103-00	s RES, CHIP	180k	5%	1/10W
1-216-105-00	s RES, CHIP	220k	5%	1/10W
1-216-107-00	s RES, CHIP	270k	5%	1/10W
1-216-109-00	s RES, CHIP	330k	5%	1/10W
1-216-111-00	s RES, CHIP	390k	5%	1/10W
1-216-113-00	s RES, CHIP	470k	5%	1/10W
1-216-115-00	s RES, CHIP	560k	5%	1/10W
1-216-117-00	s RES, CHIP	680k	5%	1/10W
1-216-119-00	s RES, CHIP	820k	5%	1/10W
1-216-121-00	s RES, CHIP	1.0M	5%	1/10W
1-216-123-11	s RES, CHIP	1.2M	5%	1/10W
1-216-125-00	s RES, CHIP	1.5M	5%	1/10W
1-216-127-11	s RES, CHIP	1.8M	5%	1/10W
1-216-129-00	s RES, CHIP	2.2M	5%	1/10W
1-216-131-11	s RES, CHIP	2.7M	5%	1/10W
1-216-133-00	s RES, CHIP	3.3M	5%	1/10W

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AT-78 BOARD

Ref. No. or Q'ty	Part No.	SP Description
1pc	A-8271-903-A	o MOUNTED CIRCUIT BOARD, AT-78
1pc	3-168-353-01	o BRACKET (UPPER), AT
1pc	3-168-354-01	o BRACKET (LOWER), AT
1pc	3-179-914-01	o PLATE, SHIELD, AT
1pc	3-717-900-01	s KNOB (A) (TC), SW
1pc	7-621-772-18	s SCREW +B 2X4
BT1	1-550-414-31	s HOLDER, BATTERY
C1	1-126-395-11	s ELECT, CHIP 22uF 20% 16V
C2	1-126-391-11	s ELECT, CHIP 47uF 20% 6.3V
C3	1-126-391-11	s ELECT, CHIP 47uF 20% 6.3V
C4	1-135-216-11	s TANTALUM, CHIP 10uF 20% 10V
C5	1-163-275-11	s CERAMIC 0.001uF 5% 50V
C6	1-135-216-11	s TANTALUM, CHIP 10uF 20% 10V
C7	1-135-216-11	s TANTALUM, CHIP 10uF 20% 10V
C8	1-126-390-11	s ELECT, CHIP 22uF 20% 6.3V
C9	1-135-216-11	s TANTALUM, CHIP 10uF 20% 10V
C10	1-135-161-21	s TANTALUM, CHIP 22uF 10% 10V
C11	1-135-161-21	s TANTALUM, CHIP 22uF 10% 10V
C12	1-163-243-11	s CERAMIC, CHIP 47PF 5% 50V
C13	1-135-216-11	s TANTALUM, CHIP 10uF 20% 10V
C14	1-163-239-11	s CERAMIC 33PF 5% 50V
C16	1-126-390-11	s ELECT, CHIP 22uF 20% 6.3V
C17	1-135-161-21	s TANTALUM, CHIP 22uF 10% 10V
C18	1-163-243-11	s CERAMIC, CHIP 47PF 5% 50V
C19	1-135-177-21	s TANTALUM, CHIP 1uF 10% 25V
C21	1-163-275-11	s CERAMIC 0.001uF 5% 50V
C22	1-163-275-11	s CERAMIC 0.001uF 5% 50V
C26	1-135-216-11	s TANTALUM, CHIP 10uF 20% 10V
C27	1-135-160-21	s TANTALUM, CHIP 15uF 10% 16V
C28	1-135-216-11	s TANTALUM, CHIP 10uF 20% 10V
C30	1-126-395-11	s ELECT, CHIP 22uF 20% 16V
C32	1-126-390-11	s ELECT, CHIP 22uF 20% 6.3V
C35	1-135-214-21	s TANTALUM 4.7uF 10% 20V
C36	1-135-214-21	s TANTALUM 4.7uF 10% 20V
C37	1-135-177-21	s TANTALUM, CHIP 1uF 10% 25V
C38	1-135-177-21	s TANTALUM, CHIP 1uF 10% 25V
C39	1-135-164-21	s TANTALUM, CHIP 22uF 20% 10V
C40	1-135-161-21	s TANTALUM, CHIP 22uF 10% 10V
C42	1-135-214-21	s TANTAL 4.7uF 20% 20V
C43	1-135-214-21	s TANTAL 4.7uF 20% 20V
C47	1-126-397-11	s ELECT, CHIP 33uF 20% 25V
C48	1-126-397-11	s ELECT, CHIP 33uF 20% 25V
C49	1-126-395-11	s ELECT, CHIP 22uF 20% 16V
C50	1-126-390-11	s ELECT, CHIP 22uF 20% 6.3V
C51	1-126-395-11	s ELECT, CHIP 22uF 20% 16V
C52	1-126-390-11	s ELECT, CHIP 22uF 20% 6.3V
C53	1-135-159-21	s TANTALUM, CHIP 10uF 10% 20V
C55	1-126-390-11	s ELECT, CHIP 22uF 20% 6.3V
C57	1-163-227-11	s CERAMIC, CHIP 10PF 5% 50V
C58	1-126-390-11	s ELECT, CHIP 22uF 20% 6.3V
C59	1-135-177-21	s TANTALUM, CHIP 1uF 10% 25V
C60	1-135-177-21	s TANTALUM, CHIP 1uF 10% 25V
C61	1-135-161-21	s TANTALUM, CHIP 22uF 10% 10V
C63	1-135-177-21	s TANTALUM, CHIP 1uF 10% 25V
C71	1-135-215-21	s TANTALUM, CHIP 6.8uF 20% 16V
C72	1-135-215-21	s TANTALUM, CHIP 6.8uF 20% 16V
C73	1-130-489-00	s FILM 0.033uF 5% 50V

(AT-78 BOARD)

Ref. No. or Q'ty	Part No.	SP Description
C74	1-163-239-11	s CERAMIC 33PF 5% 50V
C76	1-163-243-11	s CERAMIC, CHIP 47PF 5% 50V
C77	1-163-243-11	s CERAMIC, CHIP 47PF 5% 50V
C80	1-163-243-11	s CERAMIC, CHIP 47PF 5% 50V
C81	1-163-243-11	s CERAMIC, CHIP 47PF 5% 50V
CN1	1-569-031-21	s CONNECTOR, 25P
CN2	1-569-031-21	s CONNECTOR, 25P
CN3	1-564-005-11	o CONNECTOR 6P, MALE
CN4	1-506-487-11	o CONNECTOR, 8P, MALE
CV1	1-141-368-11	s CAP, CHIP TRIMMER
D1	8-719-400-18	s DIODE MA152WK
D2	8-719-800-76	s DIODE 1SS226
D3	8-719-800-76	s DIODE 1SS226
D4	8-719-400-18	s DIODE MA152WK
D6	8-719-400-18	s DIODE MA152WK
D7	8-719-400-18	s DIODE MA152WK
D8	8-719-400-18	s DIODE MA152WK
D9	8-719-400-18	s DIODE MA152WK
D10	8-719-105-90	s DIODE RD5.6M-B1
D11	8-719-105-99	s DIODE RD6.2M-B1
D12	8-719-400-18	s DIODE MA152WK
D13	8-719-800-76	s DIODE 1SS226
D14	8-719-800-76	s DIODE 1SS226
D15	8-719-400-18	s DIODE MA152WK
D17	8-719-017-42	s DIODE HSM88WA
D18	8-719-017-42	s DIODE HSM88WA
D19	8-719-017-42	s DIODE HSM88WA
D20	8-719-400-18	s DIODE MA152WK
D21	8-719-104-34	s DIODE 1S2836
D22	8-719-400-18	s DIODE MA152WK
IC1	8-759-071-41	s IC CXD8154BM
IC2	8-759-065-20	s IC RTC-4553B
IC3	8-759-080-93	s IC M6M80041FP
IC4	8-759-163-77	s IC UPD6451AGT-301
IC5	8-759-209-57	s IC TC4S69F
IC6	8-759-080-93	s IC M6M80041FP
IC7	8-759-035-93	s IC TC7S32F
IC9	8-759-035-90	s IC SC7S02FEL
IC10	8-759-035-90	s IC SC7S02FEL
IC11	8-759-035-93	s IC TC7S32F
IC13	8-759-234-20	s IC TC7S08F
IC14	8-759-234-20	s IC TC7S08F
IC15	8-759-009-05	s IC MC14051BF
IC16	8-759-169-19	s IC HD6305YOE91F
IC17	8-759-918-65	s IC TL7700CPS
IC18	8-759-009-05	s IC MC14051BF
IC19	8-759-101-12	s IC UPC311G2
IC20	8-759-635-27	s IC M62352GP
IC21	8-759-300-71	s IC MC14053BF
IC22	8-759-906-54	s IC TL064CNS
IC23	8-759-009-06	s IC MC14052BF
IC24	8-759-906-54	s IC TL064CNS
IC25	8-759-300-71	s IC MC14053BF
IC26	8-759-981-65	s IC LM2903M
IC27	8-759-209-57	s IC TC4S69F
IC28	8-759-926-62	s IC SN74HC365ANS
IC29	8-759-209-57	s IC TC4S69F
IC30	8-759-209-15	s IC TC4SU69F

Please see pages D-13 and D-14 for the part numbers of capacitors and resistors that are not listed in the parts list.

## (AT-78 BOARD)

Ref. No. or Q'ty	Part No.	SP Description
IC31	8-759-300-71	s IC MC14053BF
IC32	8-759-906-54	s IC TL064CNS
IC33	8-759-981-65	s IC LM2903M
IC34	8-759-209-97	s IC TC4S81F
L1	1-408-785-21	s INDUCTOR, CHIP 47uH
L2	1-408-785-21	s INDUCTOR, CHIP 47uH
L3	1-410-711-31	s INDUCTOR, CHIP 33uH
L4	1-408-786-21	s INDUCTOR, CHIP 56uH
L5	1-410-711-31	s INDUCTOR, CHIP 33uH
L6	1-408-797-11	s CHIP 470uH
L7	1-408-797-11	s CHIP 470uH
L8	1-408-785-21	s INDUCTOR, CHIP 47uH
L9	1-408-785-21	s INDUCTOR, CHIP 47uH
Q1	8-729-402-19	s TRANSISTOR XN6501
Q2	8-729-402-19	s TRANSISTOR XN6501
Q3	8-729-402-19	s TRANSISTOR XN6501
Q4	8-729-120-28	s TRANSISTOR 2SC1623-L5L6
Q5	8-729-120-28	s TRANSISTOR 2SC1623-L5L6
Q6	8-729-402-78	s TRANSISTOR XN6401
Q8	8-729-402-84	s TRANSISTOR XN4601
Q9	8-729-109-44	s TRANSISTOR 2SK94
Q10	8-729-120-28	s TRANSISTOR 2SC1623-L5L6
Q11	8-729-800-37	s TRANSISTOR 2SD1048-X7
Q12	8-729-807-87	s TRANSISTOR 2SB1295-UL6
Q13	8-729-216-22	s TRANSISTOR 2SA1162
Q14	8-729-120-28	s TRANSISTOR 2SC1623-L5L6
Q15	8-729-402-19	s TRANSISTOR XN6501
Q16	8-729-120-28	s TRANSISTOR 2SC1623-L5L6
Q17	8-729-216-22	s TRANSISTOR 2SA1162
Q18	8-729-109-44	s TRANSISTOR 2SK94
Q19	8-729-109-44	s TRANSISTOR 2SK94
Q20	8-729-109-44	s TRANSISTOR 2SK94
R7	1-216-663-11	s METAL, CHIP 3.3K 0.5% 1/10W
R41	1-216-655-11	s METAL, CHIP 1.5K 0.5% 1/10W
R42	1-216-691-11	s METAL, CHIP 47K 0.5% 1/10W
R45	1-216-675-11	s METAL, CHIP 10K 0.5% 1/10W
R46	1-216-697-11	s METAL, CHIP 82K 0.5% 1/10W
R47	1-216-697-11	s METAL, CHIP 82K 0.5% 1/10W
R48	1-216-675-11	s METAL, CHIP 10K 0.5% 1/10W
R49	1-216-675-11	s METAL, CHIP 10K 0.5% 1/10W
R50	1-216-665-11	s METAL, CHIP 3.9K 0.5% 1/10W
R51	1-216-675-11	s METAL, CHIP 10K 0.5% 1/10W
R52	1-216-675-11	s METAL, CHIP 10K 0.5% 1/10W
R53	1-216-675-11	s METAL, CHIP 10K 0.5% 1/10W
R54	1-216-675-11	s METAL, CHIP 10K 0.5% 1/10W
R55	1-216-675-11	s METAL, CHIP 10K 0.5% 1/10W
R81	1-216-659-11	s METAL, CHIP 2.2K 0.5% 1/10W
R84	1-216-679-11	s METAL, CHIP 15K 0.5% 1/10W
R107	1-216-679-11	s METAL, CHIP 15K 0.5% 1/10W
R108	1-216-661-11	s METAL, CHIP 2.7K 0.5% 1/10W
R111	1-216-679-11	s METAL, CHIP 15K 0.5% 1/10W
R112	1-216-683-11	s METAL, CHIP 22K 0.5% 1/10W
R121	1-216-679-11	s METAL, CHIP 15K 0.5% 1/10W
R175	1-216-669-11	s METAL, CHIP 5.6K 0.5% 1/10W
R176	1-216-677-11	s METAL, CHIP 12K 0.5% 1/10W
R188	1-216-675-11	s METAL, CHIP 10K 0.5% 1/10W
R189	1-216-687-11	s METAL, CHIP 33K 0.5% 1/10W
R190	1-216-683-11	s METAL, CHIP 22K 0.5% 1/10W

## (AT-78 BOARD)

Ref. No. or Q'ty	Part No.	SP Description
R203	1-216-679-11	s METAL, CHIP 15K 0.5% 1/10W
R204	1-216-675-11	s METAL, CHIP 10K 0.5% 1/10W
R205	1-216-699-11	s METAL, CHIP 100K 0.5% 1/10W
R214	1-216-683-11	s METAL, CHIP 22K 0.5% 1/10W
R217	1-216-659-11	s METAL, CHIP 2.2K 0.5% 1/10W
R219	1-216-671-11	s METAL, CHIP 6.8K 0.5% 1/10W
RB1	1-231-387-00	s COMPOSITION CIRCUIT BLOCK
RV4	1-237-035-11	s RES, ADJ, METAL 5K
RV5	1-237-034-11	s RES, ADJ, METAL 2K
RV6	1-237-518-21	s RES, ADJ, METAL 10K
RV7	1-237-518-21	s RES, ADJ, METAL 10K
RV8	1-237-037-11	s RES, ADJ, METAL 20K
RV9	1-237-035-11	s RES, ADJ, METAL 5K
S1	1-570-859-11	s SWITCH, SLIDE
S2	1-571-787-31	s SWITCH, TACTILE
S4	1-571-404-11	s SWITCH, KEY BOARD
S5	1-570-851-11	s SWITCH, SLIDE
S6	1-570-851-11	s SWITCH, SLIDE
S7	1-570-859-11	s SWITCH, SLIDE
S8	1-570-859-11	s SWITCH, SLIDE
S9	1-570-859-11	s SWITCH, SLIDE
S10	1-570-859-11	s SWITCH, SLIDE
S11	1-571-275-31	s SWITCH, SLIDE
S12	1-570-859-11	s SWITCH, SLIDE
S13	1-570-851-11	s SWITCH, SLIDE
S14	1-571-275-31	s SWITCH, SLIDE
S15	1-570-859-11	s SWITCH, SLIDE
S16	1-571-275-31	s SWITCH, SLIDE
S17	1-571-275-31	s SWITCH, SLIDE
X1	1-579-216-11	s VIBRATOR, CERAMIC 4.0MHz

## CN-439 BOARD

Ref. No. or Q'ty	Part No.	SP Description
1pc	1-638-047-12	o PRINTED CIRCUIT BOARD CN-439
CN1	1-566-260-21	o CONNECTOR, BOARD TO BOARD 14P
CN2	1-566-260-21	o CONNECTOR, BOARD TO BOARD 14P
CN3	1-566-098-11	o CONNECTOR, BOARD TO BOARD 14P
CN4	1-566-098-11	o CONNECTOR, BOARD TO BOARD 14P

Please see pages D-13 and D-14 for the part numbers of capacitors and resistors that are not listed in the parts list.

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EN-95A BOARD (including CN-439 board)  
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Ref. No. or Q'ty	Part No.	SP Description
1pc	A-8271-936-A	o MOUNTED CIRCUIT BOARD, EN-95A (U) [for DXC-537A(UC)]
1pc	A-8271-937-A	o MOUNTED CIRCUIT BOARD, EN-95A [for DXC-537A(J)]
1pc	A-8271-938-A	o MOUNTED CIRCUIT BOARD, EN-95A (P) [for DXC-537AP(EK)]
1pc	2-280-622-41	o SUPPORT (M3), HEXAGON
1pc	7-682-546-04	s SCREW +B 3X5
C1	1-126-395-11	s ELECT, CHIP 22uF 20% 16V
C2	1-163-239-11	s CERAMIC 33PF 5% 50V
C3	1-163-239-11	s CERAMIC 33PF 5% 50V
C4	1-126-393-11	s ELECT 33uF 20% 10V
C5	1-135-158-21	s TANTALUM 15uF 10% 4V
C6	1-135-149-21	s TANTALUM, CHIP 2.2uF 10% 10V
C7	1-163-251-11	s CERAMIC, CHIP 100PF 5% 50V
C8	1-135-181-21	s TANTAL 4.7uF 10% 6.3V
C9	1-163-239-11	s CERAMIC 33PF 5% 50V
C10	1-163-239-11	s CERAMIC 33PF 5% 50V
C11	1-126-393-11	s ELECT 33uF 20% 10V
C12	1-135-149-21	s TANTALUM, CHIP 2.2uF 10% 10V
C13	1-163-251-11	s CERAMIC, CHIP 100PF 5% 50V
C14	1-135-181-21	s TANTAL 4.7uF 10% 6.3V
C15	1-126-395-11	s ELECT, CHIP 22uF 20% 16V
C16	1-126-394-11	s ELECT, CHIP 10uF 20% 16V [for DXC-537AP(EK)]
C19	1-163-243-11	s CERAMIC, CHIP 47PF 5% 50V [for DXC-537AP(EK)]
C20	1-163-243-11	s CERAMIC, CHIP 47PF 5% 50V [for DXC-537AP(EK)]
C21	1-126-394-11	s ELECT, CHIP 10uF 20% 16V
C22	1-126-395-11	s ELECT, CHIP 22uF 20% 16V
C23	1-163-224-11	s CERAMIC, CHIP 7PF 0.25PF 50V
C24	1-126-393-11	s ELECT 33uF 20% 10V
C25	1-126-394-11	s ELECT, CHIP 10uF 20% 16V
C26	1-126-394-11	s ELECT, CHIP 10uF 20% 16V
C28	1-163-220-11	s CERAMIC 3PF 0.25PF 50V
C30	1-126-396-11	s ELECT, CHIP 47uF 20% 16V
C31	1-126-391-11	s ELECT, CHIP 47uF 20% 6.3V
C33	1-163-239-11	s CERAMIC 33PF 5% 50V [for DXC-537A(J,UC)]
C36	1-126-393-11	s ELECT 33uF 20% 10V
C37	1-126-393-11	s ELECT 33uF 20% 10V
C44	1-126-176-11	s ELECT 220uF 20% 10V
C46	1-126-393-11	s ELECT 33uF 20% 10V
C47	1-163-235-11	s CERAMIC, CHIP 22PF 5% 50V [for DXC-537AP(EK)]
C48	1-126-391-11	s ELECT, CHIP 47uF 20% 6.3V
C49	1-163-235-11	s CERAMIC, CHIP 22PF 5% 50V [for DXC-537AP(EK)]
C50	1-126-391-11	s ELECT, CHIP 47uF 20% 6.3V
C51	1-163-235-11	s CERAMIC, CHIP 22PF 5% 50V [for DXC-537AP(EK)]
C52	1-126-391-11	s ELECT, CHIP 47uF 20% 6.3V
C53	1-163-251-11	s CERAMIC, CHIP 100PF 5% 50V
C55	1-163-239-11	s CERAMIC 33PF 5% 50V [for DXC-537A(J,UC)]
C57	1-135-162-21	s TANTALUM, CHIP 33uF 10% 6.3V
C58	1-163-235-11	s CERAMIC, CHIP 22PF 5% 50V
C59	1-163-243-11	s CERAMIC, CHIP 47PF 5% 50V
C60	1-163-227-11	s CERAMIC, CHIP 10PF 5% 50V
C61	1-126-395-11	s ELECT, CHIP 22uF 20% 16V

(EN-95A BOARD)

Ref. No. or Q'ty	Part No.	SP Description
C64	1-163-251-11	s CERAMIC, CHIP 100PF 5% 50V
C65	1-126-396-11	s ELECT, CHIP 47uF 20% 16V
C66	1-126-391-11	s ELECT, CHIP 47uF 20% 6.3V
C67	1-126-393-11	s ELECT 33uF 20% 10V
C70	1-126-390-11	s ELECT, CHIP 22uF 20% 6.3V
C71	1-126-393-11	s ELECT 33uF 20% 10V
C72	1-126-390-11	s ELECT, CHIP 22uF 20% 6.3V
C76	1-126-390-11	s ELECT, CHIP 22uF 20% 6.3V
C77	1-126-390-11	s ELECT, CHIP 22uF 20% 6.3V
C78	1-126-391-11	s ELECT, CHIP 47uF 20% 6.3V
C80	1-126-390-11	s ELECT, CHIP 22uF 20% 6.3V
C82	1-163-243-11	s CERAMIC, CHIP 47PF 5% 50V
C83	1-163-243-11	s CERAMIC, CHIP 47PF 5% 50V
C84	1-163-243-11	s CERAMIC, CHIP 47PF 5% 50V
C85	1-163-243-11	s CERAMIC, CHIP 47PF 5% 50V
C87	1-135-216-11	s TANTALUM, CHIP 10uF 20% 10V
C90	1-135-216-11	s TANTALUM, CHIP 10uF 20% 10V
C91	1-126-391-11	s ELECT, CHIP 47uF 20% 6.3V
C94	1-163-235-11	s CERAMIC, CHIP 22PF 5% 50V
CN1	1-565-780-11	o CONNECTOR, TX(P.L) (PC BOARD) 50P
D1	8-719-800-76	s DIODE 1SS2260ARD TO BOARD 14P
D3	8-719-800-76	s DIODE 1SS2260 BOARD 14P
DL1	1-415-813-11	s DELAY LINE
FL1	1-235-161-00	s FILTER, BANDPASS 3.58MHz [for DXC-537A(J,UC)]
FL1	1-235-181-00	s FILTER, BANDPASS 4.43MHz [for DXC-537AP(EK)]
IC1	8-759-906-59	s IC CX22017
IC2	8-759-925-74	s IC SN74HC04ANS
IC3	8-759-209-15	s IC TC4SU69F [for DXC-537AP(EK)]
IC4	8-759-700-07	s IC NJM2903M
IC5	8-759-907-21	s IC CX-7969
IC6	8-759-911-77	s IC CX-7968A
IC8	8-759-234-20	s IC TC7S08F
IC9	8-759-710-24	s IC NJM319M
IC10	8-759-209-15	s IC TC4SU69F
L1	1-408-785-21	s INDUCTOR, CHIP 47uH
L2	1-408-795-21	s CHIP 330uH
L3	1-408-795-21	s CHIP 330uH
L4	1-408-785-21	s INDUCTOR, CHIP 47uH
L6	1-408-785-21	s INDUCTOR, CHIP 47uH
L8	1-408-785-21	s INDUCTOR, CHIP 47uH
L9	1-408-788-21	s INDUCTOR, CHIP 82uH [for DXC-537A(J,UC)]
L9	1-408-791-00	s CHIP 150uH [for DXC-537AP(EK)]
L10	1-408-783-00	s CHIP 33uH
L12	1-408-785-21	s INDUCTOR, CHIP 47uH
L14	1-408-783-00	s CHIP 33uH
LV1	1-408-844-00	s INDUCTOR, VAR, 22uH
Q1	8-729-402-19	s TRANSISTOR XN6501
Q2	8-729-402-19	s TRANSISTOR XN6501
Q4	8-729-402-19	s TRANSISTOR XN6501

Please see pages D-13 and D-14 for the part numbers of capacitors and resistors that are not listed in the parts list.

## (EN-95A BOARD)

Ref. No. or Q'ty	Part No.	SP Description
Q5	8-729-402-19	s TRANSISTOR XN6501
Q7	8-729-402-19	s TRANSISTOR XN6501
Q8	8-729-402-19	s TRANSISTOR XN6501
Q9	8-729-402-19	s TRANSISTOR XN6501
Q10	8-729-122-63	s TRANSISTOR 2SA1226
Q11	8-729-402-19	s TRANSISTOR XN6501
Q12	8-729-402-78	s TRANSISTOR XN6401
Q13	8-729-402-84	s TRANSISTOR XN4601
Q14	8-729-216-22	s TRANSISTOR 2SA1162
Q15	8-729-120-28	s TRANSISTOR 2SC1623-L5L6
Q16	8-729-403-32	s TRANSISTOR XN6534
Q17	8-729-403-32	s TRANSISTOR XN6534
Q18	8-729-216-22	s TRANSISTOR 2SA1162
Q19	8-729-402-19	s TRANSISTOR XN6501
Q20	8-729-402-78	s TRANSISTOR XN6401
Q22	8-729-403-32	s TRANSISTOR XN6534
Q24	8-729-402-19	s TRANSISTOR XN6501
Q25	8-729-402-78	s TRANSISTOR XN6401
Q27	8-729-403-29	s TRANSISTOR XN6435
Q28	8-729-402-84	s TRANSISTOR XN4601
Q29	8-729-403-29	s TRANSISTOR XN6435
Q30	8-729-402-78	s TRANSISTOR XN6401
Q31	8-729-402-78	s TRANSISTOR XN6401
Q32	8-729-402-84	s TRANSISTOR XN4601
Q33	8-729-216-22	s TRANSISTOR 2SA1162
Q34	8-729-402-19	s TRANSISTOR XN6501
Q35	8-729-402-19	s TRANSISTOR XN6501
Q36	8-729-216-22	s TRANSISTOR 2SA1162
Q37	8-729-402-78	s TRANSISTOR XN6401
Q38	8-729-402-19	s TRANSISTOR XN6501
Q39	8-729-402-19	s TRANSISTOR XN6501
Q40	8-729-216-22	s TRANSISTOR 2SA1162
Q41	8-729-402-78	s TRANSISTOR XN6401
Q42	8-729-402-19	s TRANSISTOR XN6501
Q43	8-729-402-19	s TRANSISTOR XN6501
Q44	8-729-216-22	s TRANSISTOR 2SA1162
Q45	8-729-402-78	s TRANSISTOR XN6401
Q46	8-729-402-19	s TRANSISTOR XN6501
Q47	8-729-402-84	s TRANSISTOR XN4601
Q48	8-729-120-28	s TRANSISTOR 2SC1623-L5L6
Q49	8-729-120-28	s TRANSISTOR 2SC1623-L5L6
Q50	8-729-402-84	s TRANSISTOR XN4601
R1	1-216-651-11	s METAL, CHIP 1K 0.5% 1/10W
R2	1-216-679-11	s METAL, CHIP 15K 0.5% 1/10W
R3	1-216-683-11	s METAL, CHIP 22K 0.5% 1/10W
R5	1-216-661-11	s METAL, CHIP 2.7K 0.5% 1/10W
R9	1-216-639-11	s METAL, CHIP 330 0.5% 1/10W
R13	1-216-651-11	s METAL, CHIP 1K 0.5% 1/10W
R14	1-216-683-11	s METAL, CHIP 22K 0.5% 1/10W
R15	1-216-683-11	s METAL, CHIP 22K 0.5% 1/10W
R16	1-216-651-11	s METAL, CHIP 1K 0.5% 1/10W
R17	1-216-679-11	s METAL, CHIP 15K 0.5% 1/10W
R18	1-216-683-11	s METAL, CHIP 22K 0.5% 1/10W
R21	1-216-655-11	s METAL, CHIP 1.5K 0.5% 1/10W
R22	1-216-668-11	s METAL, CHIP 5.1K 0.5% 1/10W [for DXC-537AP(EK)]
R27	1-216-651-11	s METAL, CHIP 1K 0.5% 1/10W
R28	1-216-683-11	s METAL, CHIP 22K 0.5% 1/10W

## (EN-95A BOARD)

Ref. No. or Q'ty	Part No.	SP Description
R29	1-216-683-11	s METAL, CHIP 22K 0.5% 1/10W
R33	1-216-644-11	s METAL, CHIP 510 0.5% 1/10W
R36	1-216-651-11	s METAL, CHIP 1K 0.5% 1/10W [for DXC-537A(J,UC)]
R37	1-216-651-11	s METAL, CHIP 1K 0.5% 1/10W
R38	1-216-653-11	s METAL, CHIP 1.2K 0.5% 1/10W [for DXC-537A(J,UC)]
R38	1-216-655-11	s METAL, CHIP 1.5K 0.5% 1/10W [for DXC-537AP(EK)]
R42	1-216-665-11	s METAL, CHIP 3.9K 0.5% 1/10W
R43	1-216-681-11	s METAL, CHIP 18K 0.5% 1/10W
R47	1-216-623-11	s METAL, CHIP 68 0.5% 1/10W
R48	1-216-659-11	s METAL, CHIP 2.2K 0.5% 1/10W
R49	1-216-660-11	s METAL, CHIP 2.4K 0.5% 1/10W
R51	1-216-667-11	s METAL, CHIP 4.7K 0.5% 1/10W
R66	1-216-624-11	s METAL, CHIP 75 0.5% 1/10W
R67	1-216-624-11	s METAL, CHIP 75 0.5% 1/10W
R69	1-216-663-11	s METAL, CHIP 3.3K 0.5% 1/10W
R71	1-216-651-11	s METAL, CHIP 1K 0.5% 1/10W
R72	1-216-651-11	s METAL, CHIP 1K 0.5% 1/10W
R73	1-216-641-11	s METAL, CHIP 390 0.5% 1/10W [for DXC-537A(J,UC)]
R73	1-216-639-11	s METAL, CHIP 330 0.5% 1/10W [for DXC-537AP(EK)]
R76	1-216-699-11	s METAL, CHIP 100K 0.5% 1/10W
R77	1-216-669-11	s METAL, CHIP 5.6K 0.5% 1/10W
R78	1-216-661-11	s METAL, CHIP 2.7K 0.5% 1/10W
R89	1-216-651-11	s METAL, CHIP 1K 0.5% 1/10W
R90	1-216-651-11	s METAL, CHIP 1K 0.5% 1/10W
R93	1-216-641-11	s METAL, CHIP 390 0.5% 1/10W [for DXC-537A(J,UC)]
R93	1-216-639-11	s METAL, CHIP 330 0.5% 1/10W [for DXC-537AP(EK)]
R94	1-216-659-11	s METAL, CHIP 2.2K 0.5% 1/10W
R95	1-216-693-11	s METAL, CHIP 56K 0.5% 1/10W
R96	1-216-679-11	s METAL, CHIP 15K 0.5% 1/10W
R97	1-216-687-11	s METAL, CHIP 33K 0.5% 1/10W [for DXC-537A(J,UC)]
R97	1-216-691-11	s METAL, CHIP 47K 0.5% 1/10W [for DXC-537AP(EK)]
R104	1-216-649-11	s METAL, CHIP 820 0.5% 1/10W
R105	1-216-683-11	s METAL, CHIP 22K 0.5% 1/10W [for DXC-537A(J,UC)]
R107	1-216-673-11	s METAL, CHIP 8.2K 0.5% 1/10W
R108	1-216-660-11	s METAL, CHIP 2.4K 0.5% 1/10W
R109	1-216-677-11	s METAL, CHIP 12K 0.5% 1/10W
R110	1-216-667-11	s METAL, CHIP 4.7K 0.5% 1/10W
R111	1-216-673-11	s METAL, CHIP 8.2K 0.5% 1/10W [for DXC-537A(J,UC)]
R112	1-216-651-11	s METAL, CHIP 1K 0.5% 1/10W
R115	1-216-679-11	s METAL, CHIP 15K 0.5% 1/10W
R118	1-216-667-11	s METAL, CHIP 4.7K 0.5% 1/10W
R119	1-216-667-11	s METAL, CHIP 4.7K 0.5% 1/10W [for DXC-537A(J,UC)]
R119	1-216-668-11	s METAL, CHIP 5.1K 0.5% 1/10W [for DXC-537AP(EK)]
R123	1-216-658-11	s METAL, CHIP 2K 0.5% 1/10W
R127	1-216-644-11	s METAL, CHIP 510 0.5% 1/10W
R128	1-216-644-11	s METAL, CHIP 510 0.5% 1/10W
R139	1-216-619-11	s METAL, CHIP 47 0.5% 1/10W
R144	1-216-685-11	s METAL, CHIP 27K 0.5% 1/10W

Please see pages D-13 and D-14 for the part numbers of capacitors and resistors that are not listed in the parts list.

## (EN-95A BOARD)

Ref. No. or Q'ty	Part No.	SP Description
R144	1-216-663-11	s METAL, CHIP 3.3K 0.5% 1/10W [for DXC-537A(J,UC)]
R145	1-216-675-11	s METAL, CHIP 10K 0.5% 1/10W [for DXC-537AP(EK)]
R145	1-216-681-11	s METAL, CHIP 18K 0.5% 1/10W [for DXC-537A(J,UC)]
R146	1-216-676-11	s METAL, CHIP 11K 0.5% 1/10W [for DXC-537AP(EK)]
R146	1-216-667-11	s METAL, CHIP 4.7K 0.5% 1/10W [for DXC-537A(J,UC)]
R147	1-216-679-11	s METAL, CHIP 15K 0.5% 1/10W [for DXC-537AP(EK)]
R147	1-216-671-11	s METAL, CHIP 6.8K 0.5% 1/10W [for DXC-537A(J,UC)]
R153	1-216-623-11	s METAL, CHIP 68 0.5% 1/10W
R159	1-216-685-11	s METAL, CHIP 27K 0.5% 1/10W [for DXC-537A(J,UC)]
R159	1-216-663-11	s METAL, CHIP 3.3K 0.5% 1/10W [for DXC-537AP(EK)]
R160	1-216-675-11	s METAL, CHIP 10K 0.5% 1/10W [for DXC-537A(J,UC)]
R160	1-216-681-11	s METAL, CHIP 18K 0.5% 1/10W [for DXC-537AP(EK)]
R161	1-216-679-11	s METAL, CHIP 15K 0.5% 1/10W [for DXC-537A(J,UC)]
R161	1-216-671-11	s METAL, CHIP 6.8K 0.5% 1/10W [for DXC-537AP(EK)]
R162	1-216-676-11	s METAL, CHIP 11K 0.5% 1/10W [for DXC-537A(J,UC)]
R162	1-216-667-11	s METAL, CHIP 4.7K 0.5% 1/10W [for DXC-537AP(EK)]
R169	1-216-623-11	s METAL, CHIP 68 0.5% 1/10W
R173	1-216-685-11	s METAL, CHIP 27K 0.5% 1/10W [for DXC-537A(J,UC)]
R173	1-216-663-11	s METAL, CHIP 3.3K 0.5% 1/10W [for DXC-537AP(EK)]
R174	1-216-675-11	s METAL, CHIP 10K 0.5% 1/10W [for DXC-537A(J,UC)]
R174	1-216-681-11	s METAL, CHIP 18K 0.5% 1/10W [for DXC-537AP(EK)]
R175	1-216-679-11	s METAL, CHIP 15K 0.5% 1/10W [for DXC-537A(J,UC)]
R175	1-216-671-11	s METAL, CHIP 6.8K 0.5% 1/10W [for DXC-537AP(EK)]
R176	1-216-676-11	s METAL, CHIP 11K 0.5% 1/10W [for DXC-537A(J,UC)]
R176	1-216-667-11	s METAL, CHIP 4.7K 0.5% 1/10W [for DXC-537AP(EK)]
R183	1-216-623-11	s METAL, CHIP 68 0.5% 1/10W
R202	1-216-681-11	s METAL, CHIP 18K 0.5% 1/10W
R203	1-216-631-11	s METAL, CHIP 150 0.5% 1/10W
R204	1-216-677-11	s METAL, CHIP 12K 0.5% 1/10W
R231	1-216-624-11	s METAL, CHIP 75 0.5% 1/10W
R233	1-216-685-11	s METAL, CHIP 27K 0.5% 1/10W
R237	1-218-754-11	s METAL 120K 0.50% 1/10W [for DXC-537A(J,UC)]
R237	1-216-687-11	s METAL, CHIP 33K 0.5% 1/10W [for DXC-537AP(EK)]
R238	1-218-754-11	s METAL 120K 0.50% 1/10W [for DXC-537A(J,UC)]
R238	1-216-687-11	s METAL, CHIP 33K 0.5% 1/10W [for DXC-537AP(EK)]

## (EN-95A BOARD)

Ref. No. or Q'ty	Part No.	SP Description
R239	1-218-754-11	s METAL 120K 0.50% 1/10W [for DXC-537A(J,UC)]
R239	1-216-687-11	s METAL, CHIP 33K 0.5% 1/10W [for DXC-537AP(EK)]
R240	1-216-659-11	s METAL, CHIP 2.2K 0.5% 1/10W
R241	1-216-659-11	s METAL, CHIP 2.2K 0.5% 1/10W
RV1	1-241-263-11	s RES, ADJ, METAL 5K
RV2	1-237-033-11	s RES, ADJ, METAL 1K
RV3	1-237-035-11	s RES, ADJ, METAL 5K [for DXC-537AP(EK)]
RV4	1-241-263-11	s RES, ADJ, METAL 5K
RV5	1-237-033-11	s RES, ADJ, METAL 1K
RV6	1-237-032-11	s RES, ADJ, METAL 500
RV7	1-241-262-11	s RES, ADJ, METAL 2K
RV8	1-241-260-11	s RES, ADJ, METAL 500
RV9	1-241-265-11	s RES, ADJ, METAL 20K [for DXC-537A(J,UC)]
RV10	1-237-035-11	s RES, ADJ, METAL 5K
RV11	1-241-261-41	s RES, ADJ, METAL 1K
RV12	1-237-032-11	s RES, ADJ, METAL 500
RV13	1-237-037-11	s RES, ADJ, METAL 20K [for DXC-537A(J,UC)]
RV13	1-237-033-11	s RES, ADJ, METAL 1K [for DXC-537AP(EK)]
RV14	1-237-037-11	s RES, ADJ, METAL 20K [for DXC-537A(J,UC)]
RV14	1-237-033-11	s RES, ADJ, METAL 1K [for DXC-537AP(EK)]
RV15	1-237-037-11	s RES, ADJ, METAL 20K [for DXC-537A(J,UC)]
RV15	1-237-033-11	s RES, ADJ, METAL 1K [for DXC-537AP(EK)]
RV16	1-241-264-11	s RES, ADJ, METAL 10K
RV17	1-241-260-11	s RES, ADJ, METAL 500
RV18	1-241-260-11	s RES, ADJ, METAL 500
S1	1-570-853-11	s SWITCH, SLIDE [for DXC-537A(J,UC)]
S2	1-570-863-11	s SWITCH, SLIDE

Please see pages D-13 and D-14 for the part numbers of capacitors and resistors that are not listed in the parts list.

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IE-40 BOARD  
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Ref. No. or Q'ty	Part No.	SP Description
1pc	A-8271-904-A	o MOUNTED CIRCUIT BOARD, IE-40 (N) [for DXC-537A(J,UC)]
1pc	A-8271-911-A	o MOUNTED CIRCUIT BOARD, IE-40 (P) [for DXC-537AP(EK)]
C1	1-126-392-11	s ELECT, CHIP 100uF 20% 6.3V
C2	1-164-156-11	s CERAMIC 0.1uF 25V
C3	1-162-915-11	s CERAMIC, CHIP 10PF 5PF 50V
C4	1-126-392-11	s ELECT, CHIP 100uF 20% 6.3V
C5	1-164-156-11	s CERAMIC 0.1uF 25V
C6	1-135-160-21	s TANTALUM, CHIP 15uF 10% 16V
C7	1-135-160-21	s TANTALUM, CHIP 15uF 10% 16V
C8	1-162-927-11	s CERAMIC, CHIP 100PF 5% 50V
C9	1-164-156-11	s CERAMIC 0.1uF 25V
C10	1-162-915-11	s CERAMIC, CHIP 10PF 5PF 50V
C11	1-162-964-11	s CERAMIC 0.001uF 10% 50V
C12	1-135-216-11	s TANTALUM, CHIP 10uF 20% 10V
C13	1-162-964-11	s CERAMIC 0.001uF 10% 50V
C14	1-162-911-11	s CERAMIC, CHIP 6PF 50V
C15	1-164-156-11	s CERAMIC 0.1uF 25V
C16	1-126-396-11	s ELECT, CHIP 47uF 20% 16V
C17	1-135-216-11	s TANTALUM, CHIP 10uF 20% 10V
C18	1-164-156-11	s CERAMIC 0.1uF 25V
C19	1-135-216-11	s TANTALUM, CHIP 10uF 20% 10V
C20	1-164-156-11	s CERAMIC 0.1uF 25V
C21	1-164-156-11	s CERAMIC 0.1uF 25V
C22	1-164-156-11	s CERAMIC 0.1uF 25V
C23	1-164-156-11	s CERAMIC 0.1uF 25V
C24	1-164-156-11	s CERAMIC 0.1uF 25V
C25	1-162-921-11	s CERAMIC, CHIP 33PF 5% 50V
C26	1-126-392-11	s ELECT, CHIP 100uF 20% 6.3V
C27	1-135-161-21	s TANTALUM, CHIP 22uF 10% 10V
C28	1-126-392-11	s ELECT, CHIP 100uF 20% 6.3V
C29	1-164-156-11	s CERAMIC 0.1uF 25V
C31	1-162-915-11	s CERAMIC, CHIP 10PF 5PF 50V
C32	1-135-161-21	s TANTALUM, CHIP 22uF 10% 10V
C35	1-164-156-11	s CERAMIC 0.1uF 25V
C37	1-164-156-11	s CERAMIC 0.1uF 25V
C38	1-164-156-11	s CERAMIC 0.1uF 25V
C39	1-126-392-11	s ELECT, CHIP 100uF 20% 6.3V
C41	1-126-396-11	s ELECT, CHIP 47uF 20% 16V
C42	1-126-392-11	s ELECT, CHIP 100uF 20% 6.3V
C43	1-164-156-11	s CERAMIC 0.1uF 25V
C44	1-164-156-11	s CERAMIC 0.1uF 25V
C45	1-164-156-11	s CERAMIC 0.1uF 25V
C46	1-135-210-11	s TANTALUM, CHIP 4.7uF 10% 10V
C47	1-135-210-11	s TANTALUM, CHIP 4.7uF 10% 10V
C48	1-162-927-11	s CERAMIC, CHIP 100PF 5% 50V
C49	1-164-156-11	s CERAMIC 0.1uF 25V
C50	1-135-177-21	s TANTALUM, CHIP 1uF 10% 25V
C51	1-135-177-21	s TANTALUM, CHIP 1uF 10% 25V
C52	1-135-177-21	s TANTALUM, CHIP 1uF 10% 25V
C53	1-135-177-21	s TANTALUM, CHIP 1uF 10% 25V
C54	1-164-156-11	s CERAMIC 0.1uF 25V
C55	1-164-156-11	s CERAMIC 0.1uF 25V
C56	1-135-216-11	s TANTALUM, CHIP 10uF 20% 10V
C57	1-164-156-11	s CERAMIC 0.1uF 25V
C58	1-164-156-11	s CERAMIC 0.1uF 25V
C59	1-164-156-11	s CERAMIC 0.1uF 25V
C61	1-164-156-11	s CERAMIC 0.1uF 25V

(IE-40 BOARD)

Ref. No. or Q'ty	Part No.	SP Description
C62	1-162-921-11	s CERAMIC, CHIP 33PF 5% 50V
C63	1-126-392-11	s ELECT, CHIP 100uF 20% 6.3V
C64	1-164-156-11	s CERAMIC 0.1uF 25V
C65	1-126-392-11	s ELECT, CHIP 100uF 20% 6.3V
C66	1-162-921-11	s CERAMIC, CHIP 33PF 5% 50V
C67	1-162-909-11	s CERAMIC 4PF 0.25PF 50V
C70	1-164-156-11	s CERAMIC 0.1uF 25V
C72	1-164-156-11	s CERAMIC 0.1uF 25V
C73	1-164-156-11	s CERAMIC 0.1uF 25V
C74	1-135-145-11	s TANTALUM, CHIP 0.47uF 10% 35V
C75	1-135-145-11	s TANTALUM, CHIP 0.47uF 10% 35V
C76	1-135-210-11	s TANTALUM, CHIP 4.7uF 10% 10V
C77	1-135-210-11	s TANTALUM, CHIP 4.7uF 10% 10V
C78	1-126-394-11	s ELECT, CHIP 10uF 20% 16V
C79	1-164-156-11	s CERAMIC 0.1uF 25V
C81	1-164-156-11	s CERAMIC 0.1uF 25V
C82	1-135-216-11	s TANTALUM, CHIP 10uF 20% 10V
C83	1-135-216-11	s TANTALUM, CHIP 10uF 20% 10V
C84	1-164-156-11	s CERAMIC 0.1uF 25V
C85	1-162-919-11	s CERAMIC, CHIP 22PF 5% 50V
C86	1-162-919-11	s CERAMIC, CHIP 22PF 5% 50V
C87	1-164-156-11	s CERAMIC 0.1uF 25V
C88	1-164-156-11	s CERAMIC 0.1uF 25V
C89	1-162-917-11	s CERAMIC, CHIP 15PF 5% 50V
C90	1-135-216-11	s TANTALUM, CHIP 10uF 20% 10V
C91	1-135-161-21	s TANTALUM, CHIP 22uF 10% 10V
C92	1-135-161-21	s TANTALUM, CHIP 22uF 10% 10V
C93	1-135-160-21	s TANTALUM, CHIP 15uF 10% 16V
C94	1-135-216-11	s TANTALUM, CHIP 10uF 20% 10V
C95	1-135-177-21	s TANTALUM, CHIP 1uF 10% 25V
C96	1-164-156-11	s CERAMIC 0.1uF 25V
C97	1-135-177-21	s TANTALUM, CHIP 1uF 10% 25V
C98	1-164-156-11	s CERAMIC 0.1uF 25V
C99	1-164-156-11	s CERAMIC 0.1uF 25V
C101	1-126-392-11	s ELECT, CHIP 100uF 20% 6.3V
C102	1-126-392-11	s ELECT, CHIP 100uF 20% 6.3V
C103	1-164-156-11	s CERAMIC 0.1uF 25V
C104	1-126-390-11	s ELECT, CHIP 22uF 20% 6.3V
C105	1-128-391-11	s ELECT 330uF 20% 6.3V
C107	1-135-161-21	s TANTALUM, CHIP 22uF 10% 10V
C108	1-126-396-11	s ELECT, CHIP 47uF 20% 16V
C109	1-126-391-11	s ELECT, CHIP 47uF 20% 6.3V
C110	1-135-216-11	s TANTALUM, CHIP 10uF 20% 10V
C111	1-135-166-21	s TANTALUM, CHIP 47uF 10% 10V
C112	1-135-210-11	s TANTALUM, CHIP 4.7uF 10% 10V
C113	1-135-161-21	s TANTALUM, CHIP 22uF 10% 10V
C114	1-135-160-21	s TANTALUM, CHIP 15uF 10% 16V
C115	1-162-921-11	s CERAMIC, CHIP 33PF 5% 50V
C116	1-126-392-11	s ELECT, CHIP 100uF 20% 6.3V
C117	1-135-216-11	s TANTALUM, CHIP 10uF 20% 10V
C118	1-135-216-11	s TANTALUM, CHIP 10uF 20% 10V
C119	1-162-927-11	s CERAMIC, CHIP 100PF 5% 50V
C120	1-135-216-11	s TANTALUM, CHIP 10uF 20% 10V
C121	1-135-216-11	s TANTALUM, CHIP 10uF 20% 10V
C122	1-162-919-11	s CERAMIC, CHIP 22PF 5% 50V
C123	1-135-161-21	s TANTALUM, CHIP 22uF 10% 10V
C124	1-162-970-11	s CERAMIC, CHIP 0.01uF 10% 25V
C125	1-135-216-11	s TANTALUM, CHIP 10uF 20% 10V
C126	1-135-216-11	s TANTALUM, CHIP 10uF 20% 10V

Please see pages D-13 and D-14 for the part numbers of capacitors and resistors that are not listed in the parts list.



## (IE-40 BOARD)

Ref. No. or Q'ty	Part No.	SP Description
C127	1-135-161-21	s TANTALUM, CHIP 22uF 10% 10V
C128	1-135-217-21	s TANTALUM, CHIP 15uF 10% 6.3
C129	1-135-216-11	s TANTALUM, CHIP 10uF 20% 10V
C132	1-135-076-21	s TANTALUM, CHIP 1uF 10% 35V
C133	1-135-076-21	s TANTALUM, CHIP 1uF 10% 35V
C135	1-162-911-11	s CERAMIC, CHIP 6PF 50V
CN2	1-566-270-21	o CONNECTOR, BOARD TO BOARD 8P
CN3	1-566-276-21	o CONNECTOR, BOARD TO BOARD 14P
CV1	1-141-448-21	s CAP, ADJ
CV2	1-141-450-21	s CAP, ADJ
CV3	1-141-423-61	s CAP, TRIMMER
D1	8-719-800-76	s DIODE 1SS226
D2	8-719-800-76	s DIODE 1SS226
D3	8-719-800-76	s DIODE 1SS226
D4	8-719-948-47	s DIODE HSM88AS
D5	8-719-948-47	s DIODE HSM88AS
D6	8-719-800-76	s DIODE 1SS226
DL1	1-415-627-31	s DELAY LINE, ULTRA SONIC [for DXC-537A(J,UC)]
DL1	1-415-628-31	s DELAY LINE, ULTRA SONIC [for DXC-537AP(EK)]
DL2	1-406-728-21	s DELAY LINE, LC (35NS)
DL3	1-406-728-21	s DELAY LINE, LC (35NS)
DL4	1-406-728-21	s DELAY LINE, LC (35NS)
E1	1-535-877-22	o CHIP, CHECKER
IC1	8-759-981-51	s IC RC1496M
IC5	8-759-981-51	s IC RC1496M
IC6	8-759-300-71	s IC MC14053BF
IC7	8-759-242-64	s IC TC4W53F
IC8	8-759-008-86	s IC MC14017BF
IC9	8-759-009-19	s IC MC14081BF
IC10	8-759-112-66	s IC UPC812G2
IC11	8-759-300-71	s IC MC14053BF
IC12	8-759-030-16	s IC MC34182M
IC13	8-759-242-64	s IC TC4W53F
L2	1-408-785-21	s INDUCTOR, CHIP 47uH
L3	1-410-717-31	s INDUCTOR, CHIP 100uH
L4	1-408-785-21	s INDUCTOR, CHIP 47uH
L5	1-410-703-21	s INDUCTOR, CHIP 6.8uH
L6	1-410-697-21	s INDUCTOR CHIP 2.2UH
L7	1-408-785-21	s INDUCTOR, CHIP 47uH
L8	1-408-781-00	s CHIP 22uH
L9	1-408-781-00	s CHIP 22uH
L10	1-408-797-11	s CHIP 470uH
L11	1-410-697-21	s INDUCTOR CHIP 2.2UH
L12	1-410-697-21	s INDUCTOR CHIP 2.2UH
L13	1-410-697-21	s INDUCTOR CHIP 2.2UH
L14	1-410-717-31	s INDUCTOR, CHIP 100uH
Q1	8-729-120-28	s TRANSISTOR 2SC1623-L5L6
Q2	8-729-120-28	s TRANSISTOR 2SC1623-L5L6
Q3	8-729-143-13	s TRANSISTOR 2SC4176-B34
Q4	8-729-905-24	s TRANSISTOR 2SA1576S
Q5	8-729-905-24	s TRANSISTOR 2SA1576S
Q6	8-729-143-13	s TRANSISTOR 2SC4176-B34
Q7	8-729-143-13	s TRANSISTOR 2SC4176-B34
Q8	8-729-143-07	s TRANSISTOR 2SA1610-Y33

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Ref. No. or Q'ty	Part No.	SP Description
Q9	8-729-143-13	s TRANSISTOR 2SC4176-B34
Q10	8-729-143-07	s TRANSISTOR 2SA1610-Y33
Q11	8-729-175-73	s TRANSISTOR 2SC2757
Q12	8-729-175-73	s TRANSISTOR 2SC2757
Q13	8-729-109-41	s TRANSISTOR 2SK94-X1
Q14	8-729-175-73	s TRANSISTOR 2SC2757
Q15	8-729-175-73	s TRANSISTOR 2SC2757
Q16	8-729-143-07	s TRANSISTOR 2SA1610-Y33
Q17	8-729-143-07	s TRANSISTOR 2SA1610-Y33
Q18	8-729-143-07	s TRANSISTOR 2SA1610-Y33
Q19	8-729-143-13	s TRANSISTOR 2SC4176-B34
Q21	8-729-143-13	s TRANSISTOR 2SC4176-B34
Q22	8-729-120-28	s TRANSISTOR 2SC1623-L5L6
Q23	8-729-905-24	s TRANSISTOR 2SA1576S
Q24	8-729-120-28	s TRANSISTOR 2SC1623-L5L6
Q25	8-729-120-28	s TRANSISTOR 2SC1623-L5L6
Q26	8-729-109-41	s TRANSISTOR 2SK94-X1
Q27	8-729-109-41	s TRANSISTOR 2SK94-X1
Q28	8-729-143-13	s TRANSISTOR 2SC4176-B34
Q29	8-729-143-13	s TRANSISTOR 2SC4176-B34
Q30	8-729-143-07	s TRANSISTOR 2SA1610-Y33
Q31	8-729-143-13	s TRANSISTOR 2SC4176-B34
Q32	8-729-143-07	s TRANSISTOR 2SA1610-Y33
Q33	8-729-117-73	s TRANSISTOR 2SC4178-F14
Q34	8-729-117-73	s TRANSISTOR 2SC4178-F14
Q35	8-729-109-41	s TRANSISTOR 2SK94-X1
Q36	8-729-117-73	s TRANSISTOR 2SC4178-F14
Q37	8-729-117-73	s TRANSISTOR 2SC4178-F14
Q38	8-729-143-07	s TRANSISTOR 2SA1610-Y33
Q39	8-729-143-07	s TRANSISTOR 2SA1610-Y33
Q41	8-729-143-13	s TRANSISTOR 2SC4176-B34
Q42	8-729-143-13	s TRANSISTOR 2SC4176-B34
Q43	8-729-143-13	s TRANSISTOR 2SC4176-B34
Q44	8-729-142-90	s TRANSISTOR 2SK853-K5
Q45	8-729-109-41	s TRANSISTOR 2SK94-X1
Q46	8-729-109-41	s TRANSISTOR 2SK94-X1
Q47	8-729-120-28	s TRANSISTOR 2SC1623-L5L6
Q48	8-729-120-28	s TRANSISTOR 2SC1623-L5L6
Q49	8-729-120-28	s TRANSISTOR 2SC1623-L5L6
Q50	8-729-120-28	s TRANSISTOR 2SC1623-L5L6
Q51	8-729-120-28	s TRANSISTOR 2SC1623-L5L6
Q52	8-729-120-28	s TRANSISTOR 2SC1623-L5L6
Q53	8-729-120-28	s TRANSISTOR 2SC1623-L5L6
Q54	8-729-120-28	s TRANSISTOR 2SC1623-L5L6
Q55	8-729-120-28	s TRANSISTOR 2SC1623-L5L6
Q56	8-729-120-28	s TRANSISTOR 2SC1623-L5L6
Q57	8-729-120-28	s TRANSISTOR 2SC1623-L5L6
Q58	8-729-142-90	s TRANSISTOR 2SK853-K5
Q59	8-729-905-24	s TRANSISTOR 2SA1576S
Q61	8-729-905-24	s TRANSISTOR 2SA1576S
Q62	8-729-120-28	s TRANSISTOR 2SC1623-L5L6
Q63	8-729-905-24	s TRANSISTOR 2SA1576S
Q64	8-729-905-24	s TRANSISTOR 2SA1576S
Q65	8-729-905-24	s TRANSISTOR 2SA1576S
Q66	8-729-143-13	s TRANSISTOR 2SC4176-B34
Q67	8-729-143-13	s TRANSISTOR 2SC4176-B34
Q68	8-729-143-13	s TRANSISTOR 2SC4176-B34
Q69	8-729-143-13	s TRANSISTOR 2SC4176-B34
Q70	8-729-143-13	s TRANSISTOR 2SC4176-B34

Please see pages D-13 and D-14 for the part numbers of capacitors and resistors that are not listed in the parts list.



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Ref. No. or Q'ty	Part No.	SP Description
Q71	8-729-120-28	s TRANSISTOR 2SC1623-L5L6
Q72	8-729-905-24	s TRANSISTOR 2SA1576S
Q73	8-729-120-28	s TRANSISTOR 2SC1623-L5L6
Q74	8-729-120-28	s TRANSISTOR 2SC1623-L5L6
Q75	8-729-120-28	s TRANSISTOR 2SC1623-L5L6
Q76	8-729-120-28	s TRANSISTOR 2SC1623-L5L6
Q77	8-729-143-13	s TRANSISTOR 2SC4176-B34
Q78	8-729-120-28	s TRANSISTOR 2SC1623-L5L6
Q79	8-729-905-24	s TRANSISTOR 2SA1576S
Q80	8-729-120-28	s TRANSISTOR 2SC1623-L5L6
Q81	8-729-143-13	s TRANSISTOR 2SC4176-B34
Q82	8-729-143-13	s TRANSISTOR 2SC4176-B34
Q83	8-729-142-90	s TRANSISTOR 2SK853-K5
Q84	8-729-143-13	s TRANSISTOR 2SC4176-B34
Q85	8-729-143-13	s TRANSISTOR 2SC4176-B34
Q86	8-729-120-28	s TRANSISTOR 2SC1623-L5L6
Q87	8-729-905-24	s TRANSISTOR 2SA1576S
Q88	8-729-905-24	s TRANSISTOR 2SA1576S
Q89	8-729-120-28	s TRANSISTOR 2SC1623-L5L6
Q90	8-729-143-13	s TRANSISTOR 2SC4176-B34
R1	1-216-809-11	s METAL, CHIP 100 5% 1/16W
R2	1-218-484-11	s METAL 750 0.50% 1/16W
R4	1-216-829-11	s METAL, CHIP 4.7K 5% 1/16W
R5	1-216-822-11	s METAL, CHIP 1.2K 5% 1/16W
R6	1-216-834-11	s METAL, CHIP 12K 5% 1/16W
R7	1-216-834-11	s METAL, CHIP 12K 5% 1/16W
R8	1-216-837-11	s METAL, CHIP 22K 5% 1/16W
R9	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R10	1-218-668-11	s METAL 100 0.50% 1/16W
R11	1-216-822-11	s METAL, CHIP 1.2K 5% 1/16W
R12	1-216-825-11	s METAL, CHIP 2.2K 5% 1/16W
R13	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R14	1-218-708-11	s METAL 4.7K 0.50% 1/16W
R15	1-218-704-11	s METAL 3.3K 0.50% 1/16W
R16	1-216-828-11	s METAL, CHIP 3.9K 5% 1/16W
R17	1-218-688-11	s METAL 680 0.50% 1/16W
R18	1-216-864-11	s METAL, CHIP 0-OHM
R19	1-216-811-11	s METAL, CHIP 150 5% 1/16W
R21	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R22	1-216-816-11	s METAL, CHIP 390 5% 1/16W
R23	1-216-833-11	s METAL, CHIP 10K 5% 1/16W
R24	1-216-840-11	s METAL, CHIP 39K 5% 1/16W
R25	1-216-815-11	s METAL, CHIP 330 5% 1/16W
R26	1-216-803-11	s METAL, CHIP 33 5% 1/16W
R27	1-216-803-11	s METAL, CHIP 33 5% 1/16W
R28	1-216-803-11	s METAL, CHIP 33 5% 1/16W
R29	1-218-664-11	s METAL 68 0.50% 1/16W
R30	1-218-664-11	s METAL 68 0.50% 1/16W
R31	1-218-720-11	s METAL 15K 0.50% 1/16W
R32	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R33	1-216-824-11	s METAL, CHIP 1.8K 5% 1/16W
R34	1-216-826-11	s METAL, CHIP 2.7K 5% 1/16W
R35	1-218-688-11	s METAL 680 0.50% 1/16W
R36	1-216-857-11	s METAL, CHIP 1M 5% 1/16W
R37	1-216-824-11	s METAL, CHIP 1.8K 5% 1/16W
R38	1-216-826-11	s METAL, CHIP 2.7K 5% 1/16W
R39	1-216-835-11	s METAL, CHIP 15K 5% 1/16W
R41	1-216-824-11	s METAL, CHIP 1.8K 5% 1/16W
R42	1-216-829-11	s METAL, CHIP 4.7K 5% 1/16W

## (IE-40 BOARD)

Ref. No. or Q'ty	Part No.	SP Description
R43	1-216-829-11	s METAL, CHIP 4.7K 5% 1/16W
R44	1-216-814-11	s METAL, CHIP 270 5% 1/16W
R45	1-216-829-11	s METAL, CHIP 4.7K 5% 1/16W
R46	1-216-825-11	s METAL, CHIP 2.2K 5% 1/16W
R47	1-216-814-11	s METAL, CHIP 270 5% 1/16W
R48	1-216-831-11	s METAL, CHIP 6.8K 5% 1/16W
R49	1-216-795-11	s METAL 6.8K 0.50% 1/16W
R50	1-218-704-11	s METAL 3.3K 0.50% 1/16W
R51	1-216-823-11	s METAL, CHIP 1.5K 5% 1/16W
R52	1-216-825-11	s METAL, CHIP 2.2K 5% 1/16W
R53	1-216-845-11	s METAL, CHIP 100K 5% 1/16W
R56	1-216-822-11	s METAL, CHIP 1.2K 5% 1/16W
R57	1-216-809-11	s METAL, CHIP 100 5% 1/16W
R58	1-216-839-11	s METAL, CHIP 33K 5% 1/16W
R59	1-216-833-11	s METAL, CHIP 10K 5% 1/16W
R61	1-216-833-11	s METAL, CHIP 10K 5% 1/16W
R62	1-218-732-11	s METAL 47K 0.50% 1/16W
R63	1-218-700-11	s METAL 2.2K 0.50% 1/16W
R64	1-216-833-11	s METAL, CHIP 10K 5% 1/16W
R65	1-216-843-11	s METAL, CHIP 68K 5% 1/16W
R66	1-216-853-11	s METAL, CHIP 470K 5% 1/16W
R67	1-216-843-11	s METAL, CHIP 68K 5% 1/16W
R68	1-216-841-11	s METAL, CHIP 47K 5% 1/16W
R69	1-216-815-11	s METAL, CHIP 330 5% 1/16W
R70	1-216-833-11	s METAL, CHIP 10K 5% 1/16W
R71	1-216-840-11	s METAL, CHIP 39K 5% 1/16W
R72	1-216-820-11	s METAL, CHIP 820 5% 1/16W
R73	1-216-803-11	s METAL, CHIP 33 5% 1/16W
R74	1-216-803-11	s METAL, CHIP 33 5% 1/16W
R75	1-216-803-11	s METAL, CHIP 33 5% 1/16W
R76	1-218-664-11	s METAL 68 0.50% 1/16W
R77	1-218-664-11	s METAL 68 0.50% 1/16W
R78	1-218-720-11	s METAL 15K 0.50% 1/16W
R79	1-216-824-11	s METAL, CHIP 1.8K 5% 1/16W
R81	1-216-824-11	s METAL, CHIP 1.8K 5% 1/16W
R82	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R83	1-218-688-11	s METAL 680 0.50% 1/16W
R84	1-216-845-11	s METAL, CHIP 100K 5% 1/16W
R85	1-216-824-11	s METAL, CHIP 1.8K 5% 1/16W
R86	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R87	1-216-835-11	s METAL, CHIP 15K 5% 1/16W
R88	1-216-824-11	s METAL, CHIP 1.8K 5% 1/16W
R89	1-216-829-11	s METAL, CHIP 4.7K 5% 1/16W
R90	1-216-829-11	s METAL, CHIP 4.7K 5% 1/16W
R91	1-216-814-11	s METAL, CHIP 270 5% 1/16W
R92	1-216-829-11	s METAL, CHIP 4.7K 5% 1/16W
R93	1-216-803-11	s METAL, CHIP 33 5% 1/16W
R94	1-216-795-11	s METAL 6.8K 0.50% 1/16W
R95	1-216-795-11	s METAL 6.8K 0.50% 1/16W
R96	1-216-865-11	s METAL, CHIP 3K 1/16W
R97	1-216-823-11	s METAL, CHIP 1.5K 5% 1/16W
R98	1-216-829-11	s METAL, CHIP 4.7K 5% 1/16W
R99	1-218-732-11	s METAL 47K 0.50% 1/16W
R101	1-218-700-11	s METAL 2.2K 0.50% 1/16W
R102	1-218-716-11	s METAL 10K 0.50% 1/16W
R104	1-216-845-11	s METAL, CHIP 100K 5% 1/16W
R105	1-216-841-11	s METAL, CHIP 47K 5% 1/16W
R106	1-216-843-11	s METAL, CHIP 68K 5% 1/16W
R108	1-216-843-11	s METAL, CHIP 68K 5% 1/16W

Please see pages D-13 and D-14 for the part numbers of capacitors and resistors that are not listed in the parts list.

## (IE-40 BOARD)

Ref. No. or Q'ty	Part No.	SP Description
R109	1-216-841-11	s METAL, CHIP 47K 5% 1/16W
R110	1-216-825-11	s METAL, CHIP 2.2K 5% 1/16W
R111	1-216-827-11	s METAL, CHIP 3.3K 5% 1/16W
R112	1-218-295-11	s METAL 5.6K 0.50% 1/16W
R113	1-216-826-11	s METAL, CHIP 2.7K 5% 1/16W
R114	1-218-295-11	s METAL 5.6K 0.50% 1/16W
R116	1-216-822-11	s METAL, CHIP 1.2K 5% 1/16W
R117	1-216-818-11	s METAL, CHIP 560 5% 1/16W
R118	1-216-809-11	s METAL, CHIP 100 5% 1/16W
R119	1-216-822-11	s METAL, CHIP 1.2K 5% 1/16W
R121	1-216-819-11	s METAL, CHIP 680 5% 1/16W
R122	1-216-809-11	s METAL, CHIP 100 5% 1/16W
R123	1-216-829-11	s METAL, CHIP 4.7K 5% 1/16W
R124	1-216-809-11	s METAL, CHIP 100 5% 1/16W
R125	1-218-716-11	s METAL 10K 0.50% 1/16W
R126	1-218-716-11	s METAL 10K 0.50% 1/16W
R127	1-216-833-11	s METAL, CHIP 10K 5% 1/16W
R128	1-216-829-11	s METAL, CHIP 4.7K 5% 1/16W
R129	1-216-830-11	s METAL, CHIP 5.6K 5% 1/16W
R130	1-218-708-11	s METAL 4.7K 0.50% 1/16W
R131	1-216-829-11	s METAL, CHIP 4.7K 5% 1/16W
R132	1-216-829-11	s METAL, CHIP 4.7K 5% 1/16W
R133	1-216-826-11	s METAL, CHIP 2.7K 5% 1/16W
R134	1-216-841-11	s METAL, CHIP 47K 5% 1/16W
R135	1-216-833-11	s METAL, CHIP 10K 5% 1/16W
R136	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R137	1-218-708-11	s METAL 4.7K 0.50% 1/16W
R138	1-216-826-11	s METAL, CHIP 2.7K 5% 1/16W
R139	1-216-815-11	s METAL, CHIP 330 5% 1/16W
R141	1-216-833-11	s METAL, CHIP 10K 5% 1/16W
R142	1-218-700-11	s METAL 2.2K 0.50% 1/16W
R144	1-216-822-11	s METAL, CHIP 1.2K 5% 1/16W
R145	1-216-845-11	s METAL, CHIP 100K 5% 1/16W
R146	1-216-813-11	s METAL, CHIP 220 5% 1/16W
R147	1-216-813-11	s METAL, CHIP 220 5% 1/16W
R148	1-216-813-11	s METAL, CHIP 220 5% 1/16W
R149	1-216-829-11	s METAL, CHIP 4.7K 5% 1/16W
R150	1-216-841-11	s METAL, CHIP 47K 5% 1/16W
R151	1-216-830-11	s METAL, CHIP 5.6K 5% 1/16W
R152	1-216-833-11	s METAL, CHIP 10K 5% 1/16W
R153	1-216-853-11	s METAL, CHIP 470K 5% 1/16W
R154	1-216-829-11	s METAL, CHIP 4.7K 5% 1/16W
R155	1-216-825-11	s METAL, CHIP 2.2K 5% 1/16W
R156	1-216-825-11	s METAL, CHIP 2.2K 5% 1/16W
R157	1-216-829-11	s METAL, CHIP 4.7K 5% 1/16W
R158	1-218-708-11	s METAL 4.7K 0.50% 1/16W
R159	1-218-708-11	s METAL 4.7K 0.50% 1/16W
R161	1-216-829-11	s METAL, CHIP 4.7K 5% 1/16W
R162	1-216-829-11	s METAL, CHIP 4.7K 5% 1/16W
R163	1-216-841-11	s METAL, CHIP 47K 5% 1/16W
R164	1-216-813-11	s METAL, CHIP 220 5% 1/16W
R165	1-216-833-11	s METAL, CHIP 10K 5% 1/16W
R166	1-216-825-11	s METAL, CHIP 2.2K 5% 1/16W
R167	1-216-825-11	s METAL, CHIP 2.2K 5% 1/16W
R168	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R169	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R170	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R171	1-218-700-11	s METAL 2.2K 0.50% 1/16W
R172	1-216-824-11	s METAL, CHIP 1.8K 5% 1/16W

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Ref. No. or Q'ty	Part No.	SP Description
R173	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R174	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R175	1-218-700-11	s METAL 2.2K 0.50% 1/16W
R176	1-216-830-11	s METAL, CHIP 5.6K 5% 1/16W
R177	1-216-829-11	s METAL, CHIP 4.7K 5% 1/16W
R178	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R179	1-216-822-11	s METAL, CHIP 1.2K 5% 1/16W
R181	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R182	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R183	1-216-827-11	s METAL, CHIP 3.3K 5% 1/16W
R184	1-216-825-11	s METAL, CHIP 2.2K 5% 1/16W
R185	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R186	1-216-823-11	s METAL, CHIP 1.5K 5% 1/16W
R187	1-216-826-11	s METAL, CHIP 2.7K 5% 1/16W
R188	1-218-484-11	s METAL, CHIP 750 0.50% 1/16W
R189	1-216-826-11	s METAL, CHIP 2.7K 5% 1/16W
R190	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R191	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R192	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R193	1-218-484-11	s METAL 750 0.50% 1/16W
R194	1-216-809-11	s METAL, CHIP 100 5% 1/16W
R195	1-216-829-11	s METAL, CHIP 4.7K 5% 1/16W
R196	1-216-809-11	s METAL, CHIP 100 5% 1/16W
R197	1-218-708-11	s METAL 4.7K 0.50% 1/16W
R198	1-218-716-11	s METAL 10K 0.50% 1/16W
R199	1-218-700-11	s METAL 2.2K 0.50% 1/16W
R200	1-218-716-11	s METAL 10K 0.50% 1/16W
R201	1-216-825-11	s METAL, CHIP 2.2K 5% 1/16W
R202	1-216-817-11	s METAL, CHIP 470 5% 1/16W
R203	1-218-290-11	s METAL 6.2K 0.50% 1/16W
R204	1-216-811-11	s METAL, CHIP 150 5% 1/16W
R205	1-216-811-11	s METAL, CHIP 150 5% 1/16W
R206	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R207	1-218-708-11	s METAL 4.7K 0.50% 1/16W
R208	1-216-828-11	s METAL, CHIP 3.9K 5% 1/16W
R209	1-218-704-11	s METAL 3.3K 0.50% 1/16W
R210	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R211	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R212	1-216-797-11	s METAL, CHIP 10 5% 1/16W
R213	1-216-797-11	s METAL, CHIP 10 5% 1/16W
R214	1-218-701-11	s METAL 2.4K 0.50% 1/16W
R215	1-216-816-11	s METAL, CHIP 390 5% 1/16W
R216	1-216-822-11	s METAL, CHIP 1.2K 5% 1/16W
R217	1-218-701-11	s METAL 2.4K 0.50% 1/16W
R218	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R219	1-216-833-11	s METAL, CHIP 10K 5% 1/16W
R220	1-216-809-11	s METAL, CHIP 100 5% 1/16W
R221	1-216-829-11	s METAL, CHIP 4.7K 5% 1/16W
R222	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R223	1-216-864-11	s METAL, CHIP 0-OHM
R224	1-218-708-11	s METAL 4.7K 0.50% 1/16W
R225	1-216-833-11	s METAL, CHIP 10K 5% 1/16W
R226	1-218-708-11	s METAL 4.7K 0.50% 1/16W
R227	1-216-826-11	s METAL, CHIP 2.7K 5% 1/16W
R228	1-216-839-11	s METAL, CHIP 33K 5% 1/16W
R229	1-216-839-11	s METAL, CHIP 33K 5% 1/16W
R232	1-216-846-11	s METAL, CHIP 120K 5% 1/16W
R233	1-216-846-11	s METAL, CHIP 120K 5% 1/16W
R234	1-218-720-11	s METAL 15K 0.50% 1/16W

Please see pages D-13 and D-14 for the part numbers of capacitors and resistors that are not listed in the parts list.

## (IE-40 BOARD)

Ref. No. or Q'ty	Part No.	SP Description
R235	1-216-822-11	s METAL, CHIP 1.2K 5% 1/16W
R236	1-216-817-11	s METAL, CHIP 470 5% 1/16W
R237	1-216-825-11	s METAL, CHIP 2.2K 5% 1/16W
R238	1-216-864-11	s METAL, CHIP 0-OHM
R239	1-218-668-11	s METAL, CHIP 100 0.50% 1/16W
R240	1-216-823-11	s METAL, CHIP 1.5K 5% 1/16W
RV1	1-237-038-11	s RES, ADJ, METAL 50K
RV2	1-237-038-11	s RES, ADJ, METAL 50K
RV3	1-241-262-11	s RES, ADJ, METAL 2K
RV4	1-237-034-11	s RES, ADJ, METAL 2K
RV5	1-241-263-11	s RES, ADJ, METAL 5K
RV6	1-237-032-11	s RES, ADJ, METAL 500
RV7	1-237-034-11	s RES, ADJ, METAL 2K
RV8	1-237-035-11	s RES, ADJ, METAL 5K
RV9	1-237-036-11	s RES, ADJ, METAL 10K
RV10	1-237-032-11	s RES, ADJ, METAL 500
RV11	1-237-035-11	s RES, ADJ, METAL 5K
RV12	1-237-035-11	s RES, ADJ, METAL 5K
S1	1-572-272-11	s SWITCH, SLIDE
TP1	1-535-877-22	o CHIP, CHECKER
TP2	1-535-877-22	o CHIP, CHECKER
TP3	1-535-877-22	o CHIP, CHECKER
TP4	1-535-877-22	o CHIP, CHECKER
TP5	1-535-877-22	o CHIP, CHECKER
TP6	1-535-877-22	o CHIP, CHECKER
TP7	1-535-877-22	o CHIP, CHECKER
TP8	1-535-877-22	o CHIP, CHECKER
TP9	1-535-877-22	o CHIP, CHECKER
TP10	1-535-877-22	o CHIP, CHECKER
TP11	1-535-877-22	o CHIP, CHECKER
TP12	1-535-877-22	o CHIP, CHECKER

## MB-477 BOARD

Ref. No. or Q'ty	Part No.	SP Description
1pc	A-8271-883-A	o MOUNTED CIRCUIT BOARD, MB-477 (N) [for DXC-537A(J,UC)]
1pc	A-8271-909-A	o MOUNTED CIRCUIT BOARD, MB-477 (P) [for DXC-537AP(EK)]
C4	1-135-161-21	s TANTALUM, CHIP 22uF 10% 10V
C5	1-135-216-11	s TANTALUM, CHIP 10uF 20% 10V
C6	1-163-227-11	s CERAMIC, CHIP 10PF 5% 50V
C7	1-163-227-11	s CERAMIC, CHIP 10PF 5% 50V
C10	1-163-251-11	s CERAMIC, CHIP 100PF 5% 50V
C12	1-135-212-21	s TANTAL 2.2uF 10% 35V
C13	1-126-947-11	s ELECT 47uF 20% 35V
C14	1-163-251-11	s CERAMIC, CHIP 100PF 5% 50V
C16	1-135-155-21	s TANTALUM, CHIP 4.7uF 10% 16V
C17	1-126-375-11	s ELECT 100uF 20% 25V
C18	1-163-251-11	s CERAMIC, CHIP 100PF 5% 50V
C19	1-135-070-00	s TANTALUM, CHIP 0.1uF 10% 35V
C20	1-128-225-11	s ELECT 100uF 25% 10V
C21	1-135-155-21	s TANTALUM, CHIP 4.7uF 10% 16V
C22	1-135-212-21	s TANTAL 2.2uF 10% 35V
C26	1-127-499-00	s ELECT 22uF 20% 16V
C27	1-127-558-11	s ELECT 10uF 20% 10V
C28	1-162-710-11	s CERAMIC 100PF 5% 50V
C29	1-162-710-11	s CERAMIC 100PF 5% 50V
C102	1-124-229-00	s ELECT 33uF 20% 10V
C104	1-124-229-00	s ELECT 33uF 20% 10V
C105	1-126-338-11	s ELECT 47uF 20% 63V
C106	1-137-401-11	s FILM 0.22uF 5% 100V
C107	1-137-401-11	s FILM 0.22uF 5% 100V
C108	1-137-306-11	s FILM 0.1uF 5% 16V
C109	1-137-306-11	s FILM 0.1uF 5% 16V
C110	1-137-306-11	s FILM 0.1uF 5% 16V
C111	1-137-306-11	s FILM 0.1uF 5% 16V
C114	1-135-216-11	s TANTALUM, CHIP 10uF 20% 10V
C115	1-135-216-11	s TANTALUM, CHIP 10uF 20% 10V
C116	1-163-239-11	s CERAMIC 33PF 5% 50V
C117	1-163-239-11	s CERAMIC 33PF 5% 50V
C118	1-137-323-11	s FILM 0.01uF 5% 16V
C119	1-137-323-11	s FILM 0.01uF 5% 16V
CN1	1-565-781-11	o CONNECTOR, TX(S.S)(PC BOARD)50P
CN2	1-565-781-11	o CONNECTOR, TX(S.S)(PC BOARD)50P
CN3	1-562-728-11	o CONNECTOR, MULTI 50P
CN4	1-506-467-11	o CONNECTOR, 2P, MALE
CN5	1-564-009-11	o CONNECTOR 10P, MALE
CN6	1-506-472-11	o CONNECTOR, 7P, MALE
CN7	1-506-467-11	o CONNECTOR, 2P, MALE
CN8	1-564-001-11	o CONNECTOR, 2P, MALE
CN9	1-506-467-11	o CONNECTOR, 2P, MALE
CN10	1-506-472-11	o CONNECTOR, 7P, MALE
CN11	1-506-473-11	o CONNECTOR, 8P, MALE
CN12	1-564-007-11	o CONNECTOR 8P, MALE
CN13	1-560-364-00	o CONNECTOR POST HEADER, ILG (2P)
CN14	1-506-467-11	o CONNECTOR, 2P, MALE
CN15	1-565-819-11	s CONNECTOR, FPC (DIP TYPE) 25P
CN16	1-565-819-11	s CONNECTOR, FPC (DIP TYPE) 25P
CN19	1-506-468-11	o CONNECTOR, 3P, MALE
CN20	1-506-468-11	o CONNECTOR, 3P, MALE
CN21	1-564-001-11	o CONNECTOR, 2P, MALE

Please see pages D-13 and D-14 for the part numbers of capacitors and resistors that are not listed in the parts list.

## (MB-477 BOARD)

Ref. No. or Q'ty	Part No.	SP Description
CN22	1-564-005-11	o CONNECTOR 6P, MALE
CN23	1-506-469-11	o CONNECTOR, 4P, MALE
CN24	1-564-002-41	s CONNECTOR 3P, MALE
CN25	1-506-468-11	o CONNECTOR, 3P, MALE
CP1	1-467-103-11	s CONVERTER UNIT, DC-DC
D1	8-719-104-34	s DIODE 1S2836
D2	8-719-800-76	s DIODE 1SS226
D3	8-719-911-55	s DIODE U05G
D4	8-719-104-34	s DIODE 1S2836
D101	8-719-800-76	s DIODE 1SS226
D102	8-719-800-76	s DIODE 1SS226
FL1	1-236-164-11	s ENCAPSULATED COMPONENT
IC1	8-759-242-64	s IC TC4W53F
IC3	8-759-234-20	s IC TC7S08F
IC5	8-759-906-54	s IC TL064CNS
IC101	8-759-242-64	s IC TC4W53F
IC102	8-759-981-58	s IC RC2043MD
IC103	8-759-230-99	s IC TC74HC4053AF
IC104	8-759-168-93	s IC TC4SU11F
IC105	8-759-926-95	s IC SN74HC4020ANS
IC106	8-759-906-53	s IC TL062CPS
L1	1-408-785-21	s INDUCTOR, CHIP 47uH
L2	1-408-769-41	s INDUCTOR, CHIP 2.2uH
L101	1-410-369-11	s INDUCTOR, CHIP 1uH
L102	1-410-369-11	s INDUCTOR, CHIP 1uH
L103	1-410-369-11	s INDUCTOR, CHIP 1uH
L106	1-412-026-11	s INDUCTOR, CHIP 1uH
L107	1-412-026-11	s INDUCTOR, CHIP 1uH
L108	1-412-026-11	s INDUCTOR, CHIP 1uH
Q3	8-729-120-28	s TRANSISTOR 2SC1623-L5L6
Q4	8-729-175-73	s TRANSISTOR 2SC2757
Q5	8-729-122-63	s TRANSISTOR 2SA1226
Q6	8-729-175-73	s TRANSISTOR 2SC2757
Q8	8-729-104-75	s TRANSISTOR 2SB799-ML
Q9	8-729-120-28	s TRANSISTOR 2SC1623-L5L6
Q10	8-729-101-07	s TRANSISTOR 2SB798
Q11	8-729-120-28	s TRANSISTOR 2SC1623-L5L6
Q12	8-729-140-75	s TRANSISTOR 2SD999-CLCK
Q101	8-729-120-28	s TRANSISTOR 2SC1623-L5L6
Q102	8-729-120-28	s TRANSISTOR 2SC1623-L5L6
Q103	8-729-120-28	s TRANSISTOR 2SC1623-L5L6
Q104	8-729-120-28	s TRANSISTOR 2SC1623-L5L6
Q105	8-729-120-28	s TRANSISTOR 2SC1623-L5L6
R15	1-216-639-11	s METAL, CHIP 330 0.5% 1/10W
R16	1-216-639-11	s METAL, CHIP 330 0.5% 1/10W
R34	1-216-693-11	s METAL, CHIP 56K 0.5% 1/10W
R35	1-216-684-11	s METAL, CHIP 24K 0.5% 1/10W
R39	1-216-675-11	s METAL, CHIP 10K 0.5% 1/10W
R40	1-216-679-11	s METAL, CHIP 15K 0.5% 1/10W
R42	1-216-676-11	s METAL, CHIP 11K 0.5% 1/10W
R43	1-216-683-11	s METAL, CHIP 22K 0.5% 1/10W
R101	1-216-671-11	s METAL, CHIP 6.8K 0.5% 1/10W
R102	1-216-671-11	s METAL, CHIP 6.8K 0.5% 1/10W
R103	1-216-675-11	s METAL, CHIP 10K 0.5% 1/10W
R104	1-216-675-11	s METAL, CHIP 10K 0.5% 1/10W

## (MB-477 BOARD)

Ref. No. or Q'ty	Part No.	SP Description
R107	1-216-665-11	s METAL, CHIP 3.9K 0.5% 1/10W
R108	1-216-676-11	s METAL, CHIP 11K 0.5% 1/10W
R111	1-216-665-11	s METAL, CHIP 3.9K 0.5% 1/10W
R112	1-216-676-11	s METAL, CHIP 11K 0.5% 1/10W
R132	1-216-675-11	s METAL, CHIP 10K 0.5% 1/10W
R133	1-216-611-11	s METAL, CHIP 22 0.5% 1/10W
R135	1-216-675-11	s METAL, CHIP 10K 0.5% 1/10W
R136	1-216-611-11	s METAL, CHIP 22 0.5% 1/10W
RV101	1-237-035-11	s RES, ADJ, METAL 5K
VC01	1-577-181-11	s OSCILLATOR, CRYSTAL [for DXC-537A(J,UC)]
VC01	1-577-114-11	s 29.5000MHz [for DXC-537AP(EK)]
X1	1-579-953-21	s OSCILLATOR, CERAMIC 4.096MHZ

Please see pages D-13 and D-14 for the part numbers of capacitors and resistors that are not listed in the parts list.

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PR-180 BOARD  
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Ref. No. or Q'ty	Part No.	SP Description
1pc	A-8271-905-A	o MOUNTED CIRCUIT BOARD, PR-180 [for DXC-537A(UC)]
1pc	A-8271-910-A	o MOUNTED CIRCUIT BOARD, PR-180 [for DXC-537AP(EK)]
1pc	A-8271-912-A	o MOUNTED CIRCUIT BOARD, PR-180 [for DXC-537A(J)]
C1	1-135-160-21	s TANTALUM, CHIP 15uF 10% 16V
C2	1-135-216-11	s TANTALUM, CHIP 10uF 20% 10V
C3	1-135-217-21	s TANTALUM, CHIP 15uF 10% 6.3
C4	1-126-396-11	s ELECT, CHIP 47uF 20% 16V
C5	1-126-396-11	s ELECT, CHIP 47uF 20% 16V
C6	1-135-160-21	s TANTALUM, CHIP 15uF 10% 16V
C7	1-135-216-11	s TANTALUM, CHIP 10uF 20% 10V
C8	1-135-217-21	s TANTALUM, CHIP 15uF 10% 6.3
C9	1-135-216-11	s TANTALUM, CHIP 10uF 20% 10V
C10	1-135-217-21	s TANTALUM, CHIP 15uF 10% 6.3
C11	1-135-211-11	s TANTAL 6.8uF 20% 6.3VW
C12	1-162-921-11	s CERAMIC, CHIP 33PF 5% 50V
C13	1-162-919-11	s CERAMIC, CHIP 22PF 5% 50V
C14	1-164-361-11	s CERAMIC 0.047uF 16V
C15	1-135-177-21	s TANTALUM, CHIP 1uF 10% 25V
C16	1-135-177-21	s TANTALUM, CHIP 1uF 10% 25V
C17	1-135-216-11	s TANTALUM, CHIP 10uF 20% 10V
C18	1-162-915-11	s CERAMIC, CHIP 10PF 5PF 50V
C19	1-135-216-11	s TANTALUM, CHIP 10uF 20% 10V
C20	1-162-915-11	s CERAMIC, CHIP 10PF 5PF 50V
C21	1-135-160-21	s TANTALUM, CHIP 15uF 10% 16V
C22	1-135-216-11	s TANTALUM, CHIP 10uF 20% 10V
C23	1-135-217-21	s TANTALUM, CHIP 15uF 10% 6.3
C24	1-126-396-11	s ELECT, CHIP 47uF 20% 16V
C25	1-126-396-11	s ELECT, CHIP 47uF 20% 16V
C26	1-135-160-21	s TANTALUM, CHIP 15uF 10% 16V
C27	1-135-216-11	s TANTALUM, CHIP 10uF 20% 10V
C28	1-135-217-21	s TANTALUM, CHIP 15uF 10% 6.3
C29	1-135-216-11	s TANTALUM, CHIP 10uF 20% 10V
C30	1-135-217-21	s TANTALUM, CHIP 15uF 10% 6.3
C31	1-135-211-11	s TANTAL 6.8uF 20% 6.3VW
C32	1-162-921-11	s CERAMIC, CHIP 33PF 5% 50V
C33	1-162-919-11	s CERAMIC, CHIP 22PF 5% 50V
C34	1-164-361-11	s CERAMIC 0.047uF 16V
C35	1-135-177-21	s TANTALUM, CHIP 1uF 10% 25V
C36	1-135-177-21	s TANTALUM, CHIP 1uF 10% 25V
C37	1-135-216-11	s TANTALUM, CHIP 10uF 20% 10V
C38	1-162-915-11	s CERAMIC, CHIP 10PF 5PF 50V
C39	1-135-216-11	s TANTALUM, CHIP 10uF 20% 10V
C40	1-162-915-11	s CERAMIC, CHIP 10PF 5PF 50V
C41	1-135-160-21	s TANTALUM, CHIP 15uF 10% 16V
C42	1-135-216-11	s TANTALUM, CHIP 10uF 20% 10V
C43	1-135-217-21	s TANTALUM, CHIP 15uF 10% 6.3
C44	1-135-216-11	s TANTALUM, CHIP 10uF 20% 10V
C45	1-126-396-11	s ELECT, CHIP 47uF 20% 16V
C46	1-126-396-11	s ELECT, CHIP 47uF 20% 16V
C47	1-135-160-21	s TANTALUM, CHIP 15uF 10% 16V
C48	1-135-216-11	s TANTALUM, CHIP 10uF 20% 10V
C49	1-135-217-21	s TANTALUM, CHIP 15uF 10% 6.3
C50	1-135-216-11	s TANTALUM, CHIP 10uF 20% 10V
C51	1-135-217-21	s TANTALUM, CHIP 15uF 10% 6.3
C52	1-135-211-11	s TANTAL 6.8uF 20% 6.3VW
C53	1-162-921-11	s CERAMIC, CHIP 33PF 5% 50V

(PR-180 BOARD)

Ref. No. or Q'ty	Part No.	SP Description
C54	1-162-919-11	s CERAMIC, CHIP 22PF 5% 50V
C55	1-164-361-11	s CERAMIC 0.047uF 16V
C56	1-135-177-21	s TANTALUM, CHIP 1uF 10% 25V
C57	1-135-177-21	s TANTALUM, CHIP 1uF 10% 25V
C58	1-135-216-11	s TANTALUM, CHIP 10uF 20% 10V
C59	1-162-915-11	s CERAMIC, CHIP 10PF 5PF 50V
C60	1-135-216-11	s TANTALUM, CHIP 10uF 20% 10V
C61	1-162-915-11	s CERAMIC, CHIP 10PF 5PF 50V
C62	1-135-160-21	s TANTALUM, CHIP 15uF 10% 16V
C63	1-135-216-11	s TANTALUM, CHIP 10uF 20% 10V
C64	1-135-217-21	s TANTALUM, CHIP 15uF 10% 6.3
C65	1-135-217-21	s TANTALUM, CHIP 15uF 10% 6.3
C66	1-164-156-11	s CERAMIC 0.1uF 25V
C67	1-164-156-11	s CERAMIC 0.1uF 25V
C68	1-164-156-11	s CERAMIC 0.1uF 25V
C69	1-164-156-11	s CERAMIC 0.1uF 25V
C70	1-164-156-11	s CERAMIC 0.1uF 25V
C71	1-164-156-11	s CERAMIC 0.1uF 25V
C72	1-164-156-11	s CERAMIC 0.1uF 25V
C73	1-135-216-11	s TANTALUM, CHIP 10uF 20% 10V
C74	1-164-156-11	s CERAMIC 0.1uF 25V
C75	1-164-156-11	s CERAMIC 0.1uF 25V
C76	1-135-216-11	s TANTALUM, CHIP 10uF 20% 10V
C77	1-164-156-11	s CERAMIC 0.1uF 25V
C78	1-164-156-11	s CERAMIC 0.1uF 25V
C79	1-135-216-11	s TANTALUM, CHIP 10uF 20% 10V
C80	1-164-156-11	s CERAMIC 0.1uF 25V
C81	1-164-156-11	s CERAMIC 0.1uF 25V
C82	1-164-156-11	s CERAMIC 0.1uF 25V
C83	1-164-156-11	s CERAMIC 0.1uF 25V
C84	1-162-919-11	s CERAMIC, CHIP 22PF 5% 50V
C86	1-164-156-11	s CERAMIC 0.1uF 25V
C87	1-164-156-11	s CERAMIC 0.1uF 25V
CN1	1-750-555-11	o CONNECTOR, BOARD TO BOARD 14P
CN2	1-750-555-11	o CONNECTOR, BOARD TO BOARD 14P
D1	8-719-104-34	s DIODE 1S2836
D2	8-719-104-34	s DIODE 1S2836
D3	8-719-017-42	s DIODE HSM88WA
D4	8-719-104-34	s DIODE 1S2836
D5	8-719-104-34	s DIODE 1S2836
D6	8-719-017-42	s DIODE HSM88WA
D7	8-719-104-34	s DIODE 1S2836
D8	8-719-104-34	s DIODE 1S2836
D9	8-719-017-42	s DIODE HSM88WA
D10	8-719-800-76	s DIODE 1SS226
D11	8-719-404-35	s DIODE MA141WK
DL1	1-406-727-21	s DELAY LINE, LC (165NS)
DL2	1-406-727-21	s DELAY LINE, LC (165NS)
DL3	1-406-727-21	s DELAY LINE, LC (165NS)
E1	1-535-877-22	o CHIP, CHECKER
IC1	8-759-089-61	s IC TC74HC4052AFS(EL)
IC2	8-759-906-53	s IC TL062CPS
IC3	8-759-089-61	s IC TC74HC4052AFS(EL)
IC4	8-759-906-53	s IC TL062CPS
IC5	8-759-089-61	s IC TC74HC4052AFS(EL)
IC6	8-759-906-53	s IC TL062CPS
IC7	8-759-906-53	s IC TL062CPS
IC8	8-759-906-53	s IC TL062CPS

Please see pages D-13 and D-14 for the part numbers of capacitors and resistors that are not listed in the parts list.

## (PR-180 BOARD)

Ref. No. or Q'ty	Part No.	SP Description
IC9	8-759-242-64	s IC TC4W53F
IC10	8-759-906-53	s IC TL062CPS
IC11	8-759-234-20	s IC TC7S08F
IC12	8-759-234-20	s IC TC7S08F
IC13	8-759-906-53	s IC TL062CPS
Q1	8-729-120-28	s TRANSISTOR 2SC1623-L5L6
Q2	8-729-120-28	s TRANSISTOR 2SC1623-L5L6
Q3	8-729-905-24	s TRANSISTOR 2SA1576S
Q4	8-729-402-19	s TRANSISTOR XN6501
Q5	8-729-120-28	s TRANSISTOR 2SC1623-L5L6
Q6	8-729-402-19	s TRANSISTOR XN6501
Q7	8-729-402-19	s TRANSISTOR XN6501
Q8	8-729-120-28	s TRANSISTOR 2SC1623-L5L6
Q9	8-729-120-28	s TRANSISTOR 2SC1623-L5L6
Q10	8-729-120-28	s TRANSISTOR 2SC1623-L5L6
Q11	8-729-905-24	s TRANSISTOR 2SA1576S
Q12	8-729-120-28	s TRANSISTOR 2SC1623-L5L6
Q13	8-729-142-90	s TRANSISTOR 2SK853-K5
Q14	8-729-905-24	s TRANSISTOR 2SA1576S
Q15	8-729-905-24	s TRANSISTOR 2SA1576S
Q16	8-729-905-24	s TRANSISTOR 2SA1576S
Q17	8-729-120-28	s TRANSISTOR 2SC1623-L5L6
Q18	8-729-143-07	s TRANSISTOR 2SA1610-Y33
Q19	8-729-143-07	s TRANSISTOR 2SA1610-Y33
Q20	8-729-143-13	s TRANSISTOR 2SC4176-B34
Q21	8-729-143-13	s TRANSISTOR 2SC4176-B34
Q22	8-729-143-07	s TRANSISTOR 2SA1610-Y33
Q23	8-729-120-28	s TRANSISTOR 2SC1623-L5L6
Q24	8-729-120-28	s TRANSISTOR 2SC1623-L5L6
Q25	8-729-905-24	s TRANSISTOR 2SA1576S
Q26	8-729-402-19	s TRANSISTOR XN6501
Q27	8-729-120-28	s TRANSISTOR 2SC1623-L5L6
Q28	8-729-402-19	s TRANSISTOR XN6501
Q29	8-729-402-19	s TRANSISTOR XN6501
Q30	8-729-120-28	s TRANSISTOR 2SC1623-L5L6
Q31	8-729-120-28	s TRANSISTOR 2SC1623-L5L6
Q32	8-729-120-28	s TRANSISTOR 2SC1623-L5L6
Q33	8-729-905-24	s TRANSISTOR 2SA1576S
Q34	8-729-120-28	s TRANSISTOR 2SC1623-L5L6
Q35	8-729-142-90	s TRANSISTOR 2SK853-K5
Q36	8-729-905-24	s TRANSISTOR 2SA1576S
Q37	8-729-905-24	s TRANSISTOR 2SA1576S
Q38	8-729-905-24	s TRANSISTOR 2SA1576S
Q39	8-729-120-28	s TRANSISTOR 2SC1623-L5L6
Q40	8-729-143-07	s TRANSISTOR 2SA1610-Y33
Q41	8-729-143-07	s TRANSISTOR 2SA1610-Y33
Q42	8-729-143-13	s TRANSISTOR 2SC4176-B34
Q43	8-729-143-13	s TRANSISTOR 2SC4176-B34
Q44	8-729-143-07	s TRANSISTOR 2SA1610-Y33
Q45	8-729-120-28	s TRANSISTOR 2SC1623-L5L6
Q46	8-729-120-28	s TRANSISTOR 2SC1623-L5L6
Q47	8-729-905-24	s TRANSISTOR 2SA1576S
Q48	8-729-120-28	s TRANSISTOR 2SC1623-L5L6
Q49	8-729-402-19	s TRANSISTOR XN6501
Q50	8-729-402-19	s TRANSISTOR XN6501
Q51	8-729-402-19	s TRANSISTOR XN6501
Q52	8-729-120-28	s TRANSISTOR 2SC1623-L5L6
Q53	8-729-120-28	s TRANSISTOR 2SC1623-L5L6
Q54	8-729-120-28	s TRANSISTOR 2SC1623-L5L6

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Ref. No. or Q'ty	Part No.	SP Description
Q55	8-729-905-24	s TRANSISTOR 2SA1576S
Q56	8-729-120-28	s TRANSISTOR 2SC1623-L5L6
Q57	8-729-142-90	s TRANSISTOR 2SK853-K5
Q58	8-729-905-24	s TRANSISTOR 2SA1576S
Q59	8-729-905-24	s TRANSISTOR 2SA1576S
Q60	8-729-905-24	s TRANSISTOR 2SA1576S
Q61	8-729-120-28	s TRANSISTOR 2SC1623-L5L6
Q62	8-729-143-07	s TRANSISTOR 2SA1610-Y33
Q63	8-729-143-07	s TRANSISTOR 2SA1610-Y33
Q64	8-729-143-13	s TRANSISTOR 2SC4176-B34
Q65	8-729-143-13	s TRANSISTOR 2SC4176-B34
Q66	8-729-143-07	s TRANSISTOR 2SA1610-Y33
Q67	8-729-120-28	s TRANSISTOR 2SC1623-L5L6
Q68	8-729-120-28	s TRANSISTOR 2SC1623-L5L6
Q69	8-729-120-28	s TRANSISTOR 2SC1623-L5L6
Q70	8-729-402-78	s TRANSISTOR XN6401
Q71	8-729-120-28	s TRANSISTOR 2SC1623-L5L6
Q72	8-729-120-28	s TRANSISTOR 2SC1623-L5L6
Q73	8-729-905-24	s TRANSISTOR 2SA1576S
Q74	8-729-905-24	s TRANSISTOR 2SA1576S
Q75	8-729-905-24	s TRANSISTOR 2SA1576S
Q76	8-729-905-24	s TRANSISTOR 2SA1576S
R1	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R2	1-218-708-11	s METAL 4.7K 0.50% 1/16W
R3	1-218-708-11	s METAL 4.7K 0.50% 1/16W
R5	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R6	1-218-708-11	s METAL 4.7K 0.50% 1/16W
R7	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R8	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R9	1-218-271-11	s METAL, CHIP 2.0K 0.50% 1/16W
R10	1-216-822-11	s METAL, CHIP 1.2K 5% 1/16W
R11	1-216-865-11	s METAL, CHIP 3K 1/16W
R12	1-218-708-11	s METAL 4.7K 0.50% 1/16W
R13	1-218-706-11	s METAL 3.9K 0.50% 1/16W
R14	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R15	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R16	1-218-706-11	s METAL 3.9K 0.50% 1/16W
R17	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R18	1-218-708-11	s METAL 4.7K 0.50% 1/16W
R19	1-218-708-11	s METAL 4.7K 0.50% 1/16W
R20	1-216-864-11	s METAL, CHIP 0-OHM
R22	1-216-864-11	s METAL, CHIP 0-OHM
R23	1-216-864-11	s METAL, CHIP 0-OHM
R25	1-216-864-11	s METAL, CHIP 0-OHM
R28	1-218-701-11	s METAL 2.4K 0.50% 1/16W
R29	1-218-295-11	s METAL 5.6K 0.50% 1/16W
R30	1-218-716-11	s METAL 10K 0.50% 1/16W
R31	1-216-823-11	s METAL, CHIP 1.5K 5% 1/16W
R32	1-218-706-11	s METAL 3.9K 0.50% 1/16W [for DXC-537A(UC)]
R32	1-218-701-11	s METAL 2.4K 0.50% 1/16W [for DXC-537AP(J,EK)]
R33	1-218-708-11	s METAL 4.7K 0.50% 1/16W [for DXC-537A(UC)]
R33	1-218-295-11	s METAL 5.6K 0.50% 1/16W [for DXC-537AP(J,EK)]
R34	1-218-714-11	s METAL 8.2K 0.50% 1/16W [for DXC-537A(UC)]
R34	1-218-345-11	s METAL 9.1K 0.50% 1/16W [for DXC-537AP(J,EK)]

Please see pages D-13 and D-14 for the part numbers of capacitors and resistors that are not listed in the parts list.



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Ref. No.

or Q'ty Part No. SP Description

R35	1-218-698-11	s METAL 1.8K 0.50% 1/16W
		[for DXC-537A(UC)]
R35	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
		[for DXC-537AP(J,EK)]
R36	1-218-732-11	s METAL 47K 0.50% 1/16W
R37	1-218-732-11	s METAL 47K 0.50% 1/16W
R38	1-216-826-11	s METAL, CHIP 2.7K 5% 1/16W
R39	1-218-698-11	s METAL 1.8K 0.50% 1/16W
R40	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R41	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R42	1-218-716-11	s METAL 10K 0.50% 1/16W
R43	1-218-716-11	s METAL 10K 0.50% 1/16W
R44	1-218-668-11	s METAL 100 0.50% 1/16W
R45	1-218-688-11	s METAL 680 0.50% 1/16W
R46	1-218-716-11	s METAL 10K 0.50% 1/16W
R47	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R48	1-218-680-11	s METAL 330 0.50% 1/16W
R49	1-218-688-11	s METAL 680 0.50% 1/16W
R50	1-218-680-11	s METAL 330 0.50% 1/16W
R51	1-216-823-11	s METAL, CHIP 1.5K 5% 1/16W
R52	1-218-271-11	s METAL 2K 0.50% 1/16W
R53	1-216-817-11	s METAL, CHIP 470 5% 1/16W
R54	1-218-660-91	s METAL 47 0.50% 1/16W
R55	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R56	1-216-804-11	s METAL 39K 0.50% 1/16W
R57	1-218-484-11	s METAL 750 0.50% 1/16W
R58	1-216-803-11	s METAL, CHIP 33 5% 1/16W
R59	1-216-797-11	s METAL, CHIP 10 5% 1/16W
R60	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R62	1-218-735-11	s METAL 62K 0.50% 1/16W
R63	1-218-883-11	s METAL 33K 0.50% 1/16W
R64	1-218-484-11	s METAL 750 0.50% 1/16W
R65	1-218-295-11	s METAL 5.6K 0.50% 1/16W
R66	1-218-270-11	s METAL 1.1K 0.50% 1/16W
R67	1-218-698-11	s METAL 1.8K 0.50% 1/16W
R68	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R69	1-218-706-11	s METAL 3.9K 0.50% 1/16W
R70	1-218-714-11	s METAL 8.2K 0.50% 1/16W
R71	1-218-716-11	s METAL 10K 0.50% 1/16W
R72	1-218-732-11	s METAL 47K 0.50% 1/16W
R73	1-216-817-11	s METAL, CHIP 470 5% 1/16W
R74	1-218-732-11	s METAL 47K 0.50% 1/16W
R75	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R76	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R77	1-218-704-11	s METAL 3.3K 0.50% 1/16W
R78	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R79	1-218-720-11	s METAL 15K 0.50% 1/16W
R80	1-218-668-11	s METAL 100 0.50% 1/16W
R81	1-218-708-11	s METAL 4.7K 0.50% 1/16W
R82	1-218-708-11	s METAL 4.7K 0.50% 1/16W
R83	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R84	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R85	1-218-700-11	s METAL 2.2K 0.50% 1/16W
R86	1-218-668-11	s METAL 100 0.50% 1/16W
R87	1-218-716-11	s METAL 10K 0.50% 1/16W
R88	1-218-668-11	s METAL 100 0.50% 1/16W
R89	1-218-720-11	s METAL 15K 0.50% 1/16W
R90	1-216-795-11	s METAL 6.8K 0.50% 1/16W

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Ref. No.

or Q'ty Part No. SP Description

R92	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R93	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R94	1-218-708-11	s METAL 4.7K 0.50% 1/16W
R95	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R96	1-216-822-11	s METAL, CHIP 1.2K 5% 1/16W
R97	1-218-271-11	s METAL, CHIP 2.0K 0.50% 1/16W
R98	1-216-865-11	s METAL, CHIP 3K 1/16W
R99	1-218-708-11	s METAL 4.7K 0.50% 1/16W
R100	1-218-706-11	s METAL 3.9K 0.50% 1/16W
R101	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R102	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R103	1-218-706-11	s METAL 3.9K 0.50% 1/16W
R104	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R105	1-218-708-11	s METAL 4.7K 0.50% 1/16W
R106	1-218-708-11	s METAL 4.7K 0.50% 1/16W
R107	1-216-864-11	s METAL, CHIP 0-OHM
R109	1-216-864-11	s METAL, CHIP 0-OHM
R110	1-216-864-11	s METAL, CHIP 0-OHM
R112	1-216-864-11	s METAL, CHIP 0-OHM
R115	1-218-732-11	s METAL 47K 0.50% 1/16W
R116	1-218-668-11	s METAL 100 0.50% 1/16W
R117	1-218-716-11	s METAL 10K 0.50% 1/16W
R118	1-216-817-11	s METAL, CHIP 470 5% 1/16W
R119	1-216-795-11	s METAL 6.8K 0.50% 1/16W
		[for DXC-537A(UC)]
R119	1-218-344-11	s METAL 7.5K 0.50% 1/16W
		[for DXC-537AP(J,EK)]
R120	1-216-826-11	s METAL, CHIP 2.7K 5% 1/16W
		[for DXC-537A(UC)]
R120	1-216-823-11	s METAL, CHIP 1.5K 5% 1/16W
		[for DXC-537AP(J,EK)]
R121	1-218-345-11	s METAL 9.1K 0.50% 1/16W
R122	1-218-313-11	s METAL, CHIP 560 1% 1/16W
		[for DXC-537A(UC)]
R122	1-218-680-11	s METAL 330 0.50% 1/16W
		[for DXC-537AP(J,EK)]
R123	1-216-826-11	s METAL, CHIP 2.7K 5% 1/16W
R124	1-216-826-11	s METAL, CHIP 2.7K 5% 1/16W
R125	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R126	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R127	1-218-716-11	s METAL 10K 0.50% 1/16W
R128	1-218-716-11	s METAL 10K 0.50% 1/16W
R129	1-218-668-11	s METAL 100 0.50% 1/16W
R130	1-218-688-11	s METAL 680 0.50% 1/16W
R131	1-218-716-11	s METAL 10K 0.50% 1/16W
R132	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R133	1-218-680-11	s METAL 330 0.50% 1/16W
R134	1-218-688-11	s METAL 680 0.50% 1/16W
R135	1-218-680-11	s METAL 330 0.50% 1/16W
R136	1-216-823-11	s METAL, CHIP 1.5K 5% 1/16W
R137	1-218-271-11	s METAL 2K 0.50% 1/16W
R138	1-216-817-11	s METAL, CHIP 470 5% 1/16W
R139	1-218-660-91	s METAL 47 0.50% 1/16W
R140	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R141	1-216-804-11	s METAL 39K 0.50% 1/16W
R142	1-218-484-11	s METAL 750 0.50% 1/16W
R143	1-216-803-11	s METAL, CHIP 33 5% 1/16W
R144	1-216-797-11	s METAL, CHIP 10 5% 1/16W
R145	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R147	1-218-735-11	s METAL 62K 0.50% 1/16W

Please see pages D-13 and D-14 for the part numbers of capacitors and resistors that are not listed in the parts list.

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Ref. No. or Q'ty	Part No.	SP Description
R148	1-218-883-11	s METAL 33K 0.50% 1/16W
R149	1-218-484-11	s METAL 750 0.50% 1/16W
R150	1-218-295-11	s METAL 5.6K 0.50% 1/16W
R151	1-218-270-11	s METAL 1.1K 0.50% 1/16W
R152	1-218-698-11	s METAL 1.8K 0.50% 1/16W
R153	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R154	1-218-706-11	s METAL 3.9K 0.50% 1/16W
R155	1-218-714-11	s METAL 8.2K 0.50% 1/16W
R156	1-218-716-11	s METAL 10K 0.50% 1/16W
R157	1-218-732-11	s METAL 47K 0.50% 1/16W
R158	1-216-817-11	s METAL, CHIP 470 5% 1/16W
R159	1-218-732-11	s METAL 47K 0.50% 1/16W
R160	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R161	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R162	1-218-704-11	s METAL 3.3K 0.50% 1/16W
R163	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R164	1-218-720-11	s METAL 15K 0.50% 1/16W
R165	1-218-708-11	s METAL 4.7K 0.50% 1/16W
R166	1-218-668-11	s METAL 100 0.50% 1/16W
R167	1-218-708-11	s METAL 4.7K 0.50% 1/16W
R168	1-218-668-11	s METAL 100 0.50% 1/16W
R169	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R170	1-218-668-11	s METAL 100 0.50% 1/16W
R171	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R172	1-218-716-11	s METAL 10K 0.50% 1/16W
R173	1-218-668-11	s METAL 100 0.50% 1/16W
R174	1-216-795-11	s METAL 6.8K 0.50% 1/16W
R176	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R177	1-218-708-11	s METAL 4.7K 0.50% 1/16W
R178	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R179	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R180	1-218-271-11	s METAL, CHIP 2.0K 0.50% 1/16W
R181	1-216-822-11	s METAL, CHIP 1.2K 5% 1/16W
R182	1-216-865-11	s METAL, CHIP 3K 1/16W
R183	1-218-708-11	s METAL 4.7K 0.50% 1/16W
R184	1-218-706-11	s METAL 3.9K 0.50% 1/16W
R185	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R186	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R187	1-218-704-11	s METAL 3.3K 0.50% 1/16W
R188	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R189	1-218-706-11	s METAL 3.9K 0.50% 1/16W
R190	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R191	1-218-708-11	s METAL 4.7K 0.50% 1/16W
R192	1-218-708-11	s METAL 4.7K 0.50% 1/16W
R193	1-216-864-11	s METAL, CHIP 0-OHM
R195	1-216-864-11	s METAL, CHIP 0-OHM
R196	1-216-864-11	s METAL, CHIP 0-OHM
R198	1-216-864-11	s METAL, CHIP 0-OHM
R201	1-218-716-11	s METAL 10K 0.50% 1/16W
R202	1-218-668-11	s METAL 100 0.50% 1/16W
R203	1-218-716-11	s METAL 10K 0.50% 1/16W
R204	1-218-668-11	s METAL 100 0.50% 1/16W
R205	1-218-716-11	s METAL 10K 0.50% 1/16W [for DXC-537A(UC)]
R205	1-216-795-11	s METAL 6.8K 0.50% 1/16W [for DXC-537AP(J,EK)]
R206	1-218-668-11	s METAL 100 0.50% 1/16W [for DXC-537A(UC)]
R206	1-216-821-11	s METAL, CHIP 1K 5% 1/16W [for DXC-537AP(J,EK)]

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Ref. No. or Q'ty	Part No.	SP Description
R207	1-218-708-11	s METAL 4.7K 0.50% 1/16W [for DXC-537A(UC)]
R207	1-218-714-11	s METAL 8.2K 0.50% 1/16W [for DXC-537AP(J,EK)]
R208	1-218-706-11	s METAL 3.9K 0.50% 1/16W [for DXC-537A(UC)]
R208	1-218-700-11	s METAL 2.2K 0.50% 1/16W [for DXC-537AP(J,EK)]
R209	1-216-826-11	s METAL, CHIP 2.7K 5% 1/16W
R210	1-216-826-11	s METAL, CHIP 2.7K 5% 1/16W
R211	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R212	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R213	1-218-716-11	s METAL 10K 0.50% 1/16W
R214	1-218-716-11	s METAL 10K 0.50% 1/16W
R215	1-218-668-11	s METAL 100 0.50% 1/16W
R216	1-218-688-11	s METAL 680 0.50% 1/16W
R217	1-218-716-11	s METAL 10K 0.50% 1/16W
R218	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R219	1-218-680-11	s METAL 330 0.50% 1/16W
R220	1-218-688-11	s METAL 680 0.50% 1/16W
R221	1-218-680-11	s METAL 330 0.50% 1/16W
R222	1-216-823-11	s METAL, CHIP 1.5K 5% 1/16W
R223	1-218-271-11	s METAL 2K 0.50% 1/16W
R224	1-216-817-11	s METAL, CHIP 470 5% 1/16W
R225	1-218-660-91	s METAL 47 0.50% 1/16W
R226	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R227	1-216-804-11	s METAL 39K 0.50% 1/16W
R228	1-218-484-11	s METAL 750 0.50% 1/16W
R229	1-216-803-11	s METAL, CHIP 33 5% 1/16W
R230	1-216-797-11	s METAL, CHIP 10 5% 1/16W
R231	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R233	1-218-735-11	s METAL 62K 0.50% 1/16W
R234	1-218-883-11	s METAL 33K 0.50% 1/16W
R235	1-218-484-11	s METAL 750 0.50% 1/16W
R236	1-218-295-11	s METAL 5.6K 0.50% 1/16W
R237	1-218-270-11	s METAL 1.1K 0.50% 1/16W
R238	1-218-698-11	s METAL 1.8K 0.50% 1/16W
R239	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R240	1-218-706-11	s METAL 3.9K 0.50% 1/16W
R241	1-218-714-11	s METAL 8.2K 0.50% 1/16W
R242	1-218-716-11	s METAL 10K 0.50% 1/16W
R243	1-218-732-11	s METAL 47K 0.50% 1/16W
R244	1-218-732-11	s METAL 47K 0.50% 1/16W
R245	1-216-817-11	s METAL, CHIP 470 5% 1/16W
R246	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R247	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R248	1-218-704-11	s METAL 3.3K 0.50% 1/16W
R249	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R250	1-218-720-11	s METAL 15K 0.50% 1/16W
R251	1-218-708-11	s METAL 4.7K 0.50% 1/16W
R252	1-218-668-11	s METAL 100 0.50% 1/16W
R253	1-218-708-11	s METAL 4.7K 0.50% 1/16W
R254	1-218-668-11	s METAL 100 0.50% 1/16W
R255	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R256	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R257	1-218-668-11	s METAL 100 0.50% 1/16W
R258	1-218-716-11	s METAL 10K 0.50% 1/16W
R259	1-218-668-11	s METAL 100 0.50% 1/16W
R260	1-218-720-11	s METAL 15K 0.50% 1/16W

Please see pages D-13 and D-14 for the part numbers of capacitors and resistors that are not listed in the parts list.



## (PR-180 BOARD)

Ref. No. or Q'ty	Part No.	SP Description
R261	1-216-795-11	s METAL 6.8K 0.50% 1/16W
R262	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R263	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R264	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R265	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R266	1-218-734-11	s METAL 56K 0.50% 1/16W
R267	1-218-734-11	s METAL 56K 0.50% 1/16W
R268	1-218-734-11	s METAL 56K 0.50% 1/16W
R269	1-218-706-11	s METAL 3.9K 0.50% 1/16W
R270	1-218-706-11	s METAL 3.9K 0.50% 1/16W
R271	1-218-708-11	s METAL 4.7K 0.50% 1/16W
R272	1-218-272-11	s METAL 5.1K 0.50% 1/16W
R273	1-218-272-11	s METAL 5.1K 0.50% 1/16W
R274	1-216-857-11	s METAL, CHIP 1M 5% 1/16W
R275	1-216-823-11	s METAL, CHIP 1.5K 5% 1/16W
R276	1-218-708-11	s METAL 4.7K 0.50% 1/16W
R277	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R278	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R279	1-218-708-11	s METAL 4.7K 0.50% 1/16W
R280	1-218-295-11	s METAL 5.6K 0.50% 1/16W
R281	1-218-716-11	s METAL 10K 0.50% 1/16W
R282	1-218-732-11	s METAL 47K 0.50% 1/16W
R283	1-218-708-11	s METAL 4.7K 0.50% 1/16W
R284	1-218-668-11	s METAL 100 0.50% 1/16W
R285	1-218-668-11	s METAL 100 0.50% 1/16W
R286	1-218-705-11	s METAL 3.6K 0.50% 1/16W
R287	1-218-716-11	s METAL 10K 0.50% 1/16W
R288	1-218-708-11	s METAL 4.7K 0.50% 1/16W
R289	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R290	1-216-795-11	s METAL 6.8K 0.50% 1/16W
R291	1-218-716-11	s METAL 10K 0.50% 1/16W
R292	1-218-708-11	s METAL 4.7K 0.50% 1/16W
R293	1-218-668-11	s METAL 100 0.50% 1/16W
R294	1-218-705-11	s METAL 3.6K 0.50% 1/16W
R295	1-218-716-11	s METAL 10K 0.50% 1/16W
R296	1-218-708-11	s METAL 4.7K 0.50% 1/16W
R297	1-216-836-11	s METAL, CHIP 18K 5% 1/16W
R298	1-218-883-11	s METAL 33K 0.50% 1/16W
R299	1-218-716-11	s METAL 10K 0.50% 1/16W
R300	1-218-724-11	s METAL 22K 0.50% 1/16W
R301	1-216-826-11	s METAL, CHIP 2.7K 5% 1/16W
R302	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R303	1-218-708-11	s METAL 4.7K 0.50% 1/16W
R304	1-218-883-11	s METAL 33K 0.50% 1/16W
R305	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R306	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R307	1-218-883-11	s METAL 33K 0.50% 1/16W
R308	1-218-883-11	s METAL 33K 0.50% 1/16W
R309	1-218-700-11	s METAL 2.2K 0.50% 1/16W
R310	1-218-676-11	s METAL 220 0.50% 1/16W
R311	1-218-704-11	s METAL 3.3K 0.50% 1/16W
R312	1-218-668-11	s METAL 100 0.50% 1/16W
R313	1-218-883-11	s METAL 33K 0.50% 1/16W
R314	1-216-838-11	s METAL, CHIP 27K 5% 1/16W
R315	1-218-668-11	s METAL 100 0.50% 1/16W
R316	1-218-668-11	s METAL 100 0.50% 1/16W
R317	1-216-864-11	s METAL, CHIP 0-OHM
R318	1-216-864-11	s METAL, CHIP 0-OHM
R319	1-216-864-11	s METAL, CHIP 0-OHM

## (PR-180 BOARD)

Ref. No. or Q'ty	Part No.	SP Description
R320	1-218-716-11	s METAL 10K 0.50% 1/16W
RV1	1-237-032-11	s RES, ADJ, METAL 500
RV2	1-237-036-11	s RES, ADJ, METAL 10K
RV3	1-237-036-11	s RES, ADJ, METAL 10K
RV4	1-237-033-11	s RES, ADJ, METAL 1K
RV5	1-237-035-11	s RES, ADJ, METAL 5K
RV6	1-241-266-11	s RES, ADJ, METAL 50K
RV7	1-237-034-11	s RES, ADJ, METAL 2K
RV8	1-237-032-11	s RES, ADJ, METAL 500
RV9	1-237-036-11	s RES, ADJ, METAL 10K
RV10	1-237-036-11	s RES, ADJ, METAL 10K
RV11	1-237-033-11	s RES, ADJ, METAL 1K
RV12	1-237-035-11	s RES, ADJ, METAL 5K
RV13	1-241-266-11	s RES, ADJ, METAL 50K
RV14	1-237-034-11	s RES, ADJ, METAL 2K
RV15	1-237-032-11	s RES, ADJ, METAL 500
RV16	1-237-036-11	s RES, ADJ, METAL 10K
RV17	1-237-036-11	s RES, ADJ, METAL 10K
RV18	1-237-033-11	s RES, ADJ, METAL 1K
RV19	1-237-035-11	s RES, ADJ, METAL 5K
RV20	1-241-266-11	s RES, ADJ, METAL 50K
RV21	1-237-034-11	s RES, ADJ, METAL 2K
RV22	1-237-035-11	s RES, ADJ, METAL 5K
RV23	1-241-263-11	s RES, ADJ, METAL 5K
RV24	1-241-263-11	s RES, ADJ, METAL 5K
RV25	1-237-033-11	s RES, ADJ, METAL 1K
RV26	1-237-033-11	s RES, ADJ, METAL 1K
RV27	1-241-262-11	s RES, ADJ, METAL 2K
RV28	1-241-262-11	s RES, ADJ, METAL 2K
RV29	1-241-262-11	s RES, ADJ, METAL 2K
SW1	1-571-275-31	s SWITCH, SLIDE
SW2	1-571-275-31	s SWITCH, SLIDE
SW3	1-571-275-31	s SWITCH, SLIDE
SW4	1-572-272-11	s SWITCH, SLIDE
TP1	1-535-877-22	o CHIP, CHECKER
TP2	1-535-877-22	o CHIP, CHECKER
TP3	1-535-877-22	o CHIP, CHECKER
TP4	1-535-877-22	o CHIP, CHECKER
TP5	1-535-877-22	o CHIP, CHECKER
TP6	1-535-877-22	o CHIP, CHECKER
TP7	1-535-877-22	o CHIP, CHECKER
TP8	1-535-877-22	o CHIP, CHECKER
TP9	1-535-877-22	o CHIP, CHECKER
TP10	1-535-877-22	o CHIP, CHECKER
TP11	1-535-877-22	o CHIP, CHECKER
TP12	1-535-877-22	o CHIP, CHECKER
TP13	1-535-877-22	o CHIP, CHECKER

Please see pages D-13 and D-14 for the part numbers of capacitors and resistors that are not listed in the parts list.

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SG-171 BOARD  
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Ref. No. or Q'ty	Part No.	SP Description
1pc	A-7515-288-A	o MOUNTED CIRCUIT BOARD, SG-171 (N) [for DXC-537A(J,UC)]
1pc	A-7515-289-A	o MOUNTED CIRCUIT BOARD, SG-171 (P) [for DXC-537AP(EK)]
C3	1-135-159-21	s TANTALUM, CHIP 10uF 10% 20V
C5	1-135-159-21	s TANTALUM, CHIP 10uF 10% 20V
C6	1-163-037-11	s CERAMIC, CHIP 0.022uF 10% 25V
C7	1-163-275-11	s CERAMIC 0.001uF 5% 50V
C8	1-126-392-11	s ELECT, CHIP 100uF 20% 6.3V
C9	1-163-251-11	s CERAMIC, CHIP 100PF 5% 50V
C11	1-135-216-11	s TANTALUM, CHIP 10uF 20% 10V
C12	1-135-216-11	s TANTALUM, CHIP 10uF 20% 10V
C13	1-163-239-11	s CERAMIC 33PF 5% 50V [for DXC-537AP(EK)]
C14	1-135-073-00	s TANTALUM, CHIP 0.33uF 10% 35V
C15	1-163-243-11	s CERAMIC, CHIP 47PF 5% 50V
C16	1-135-070-00	s TANTALUM, CHIP 0.1uF 10% 35V
C17	1-135-070-00	s TANTALUM, CHIP 0.1uF 10% 35V
C18	1-135-210-11	s TANTALUM, CHIP 4.7uF 10% 10V
C20	1-135-161-21	s TANTALUM, CHIP 22uF 10% 10V
C22	1-135-210-11	s TANTALUM, CHIP 4.7uF 10% 10V
C23	1-135-166-21	s TANTALUM, CHIP 47uF 10% 10V
C32	1-135-216-11	s TANTALUM, CHIP 10uF 20% 10V
C33	1-135-216-11	s TANTALUM, CHIP 10uF 20% 10V
C37	1-135-216-11	s TANTALUM, CHIP 10uF 20% 10V
C38	1-135-091-00	s TANTALUM, CHIP 1uF 10% 16V
C41	1-126-320-11	s ELECT, NONPOLAR 10uF 20% 16V
C43	1-135-216-11	s TANTALUM, CHIP 10uF 20% 10V
C46	1-135-216-11	s TANTALUM, CHIP 10uF 20% 10V
C47	1-163-037-11	s CERAMIC, CHIP 0.022uF 10% 25V [for DXC-537AP(EK)]
C50	1-163-227-11	s CERAMIC, CHIP 10PF 5% 50V
C53	1-163-243-11	s CERAMIC, CHIP 47PF 5% 50V
C54	1-163-243-11	s CERAMIC, CHIP 47PF 5% 50V
C55	1-163-243-11	s CERAMIC, CHIP 47PF 5% 50V [for DXC-537AP(EK)]
C56	1-163-243-11	s CERAMIC, CHIP 47PF 5% 50V
C59	1-135-070-00	s TANTALUM, CHIP 0.1uF 10% 35V
C60	1-135-215-21	s TANTALUM, CHIP 6.8uF 20% 16V
C61	1-163-235-11	s CERAMIC, CHIP 22PF 5% 50V
C62	1-163-243-11	s CERAMIC, CHIP 47PF 5% 50V
C64	1-135-070-00	s TANTALUM, CHIP 0.1uF 10% 35V
C65	1-135-215-21	s TANTALUM, CHIP 6.8uF 20% 16V
C66	1-163-235-11	s CERAMIC, CHIP 22PF 5% 50V
C70	1-135-156-21	s TANTALUM, CHIP 6.8uF 10% 6.3V
C73	1-163-275-11	s CERAMIC 0.001uF 5% 50V
C75	1-135-216-11	s TANTALUM, CHIP 10uF 20% 10V
C76	1-135-159-21	s TANTALUM, CHIP 10uF 10% 20V
C77	1-135-156-21	s TANTALUM, CHIP 6.8uF 10% 6.3V
C79	1-135-070-00	s TANTALUM, CHIP 0.1uF 10% 35V
C80	1-135-215-21	s TANTALUM, CHIP 6.8uF 20% 16V
C81	1-163-235-11	s CERAMIC, CHIP 22PF 5% 50V
C82	1-163-243-11	s CERAMIC, CHIP 47PF 5% 50V
C84	1-135-070-00	s TANTALUM, CHIP 0.1uF 10% 35V
C85	1-135-215-21	s TANTALUM, CHIP 6.8uF 20% 16V
C86	1-163-235-11	s CERAMIC, CHIP 22PF 5% 50V
C87	1-135-216-11	s TANTALUM, CHIP 10uF 20% 10V
C88	1-135-216-11	s TANTALUM, CHIP 10uF 20% 10V
C89	1-126-396-11	s ELECT, CHIP 47uF 20% 16V

(SG-171 BOARD)

Ref. No. or Q'ty	Part No.	SP Description
C93	1-135-216-11	s TANTALUM, CHIP 10uF 20% 10V
C95	1-135-216-11	s TANTALUM, CHIP 10uF 20% 10V
CN1	1-563-687-21	o CONNECTOR, BOARD TO BOARD 14P
CN2	1-563-687-21	o CONNECTOR, BOARD TO BOARD 14P
CP1	1-577-089-11	s OSCILLATOR, CRYSTAL [for DXC-537A(J,UC)]
CP1	1-577-183-11	s OSCILLATOR, CRYSTAL [for DXC-537AP(EK)]
D1	8-719-104-34	s DIODE 1S2836
D2	8-719-104-34	s DIODE 1S2836
D3	8-719-104-34	s DIODE 1S2836
D4	8-719-104-34	s DIODE 1S2836 [for DXC-537AP(EK)]
IC1	8-759-101-12	s IC UPC311G2
IC2	8-752-335-47	s IC CXD1216M
IC3	8-759-100-94	s IC UPC358G2
IC4	8-759-973-99	s IC CXD1361M [for DXC-537AP(EK)]
IC5	8-759-100-94	s IC UPC358G2
IC6	8-759-902-88	s IC SN74LS123NS
IC7	8-759-100-94	s IC UPC358G2
IC8	8-759-902-88	s IC SN74LS123NS
IC9	8-752-332-67	s IC CXD1217M
IC10	8-759-239-23	s IC SN74HC86NS
IC11	8-759-234-77	s IC TC4S66F
IC12	8-759-239-34	s IC TC74HC4538AF
IC13	8-759-038-46	s IC TC7S00F
IC14	8-759-112-66	s IC UPC812G2
IC15	8-759-242-64	s IC TC4W53F
IC16	8-759-242-64	s IC TC4W53F
IC18	8-759-927-46	s IC SN74HC00ANS
IC19	8-759-234-77	s IC TC4S66F
IC20	8-759-234-20	s IC TC7S08F
L1	1-408-785-21	s INDUCTOR, CHIP 47uH
L2	1-408-785-21	s INDUCTOR, CHIP 47uH
L3	1-408-785-21	s INDUCTOR, CHIP 47uH
L4	1-410-711-31	s INDUCTOR, CHIP 33uH
L5	1-408-785-21	s INDUCTOR, CHIP 47uH
L8	1-408-785-21	s INDUCTOR, CHIP 47uH
L9	1-410-719-31	s INDUCTOR, CHIP 150uH [for DXC-537A(J,UC)]
L9	1-410-717-31	s INDUCTOR, CHIP 100uH [for DXC-537AP(EK)]
L10	1-408-785-21	s INDUCTOR, CHIP 47uH
L11	1-408-785-21	s INDUCTOR, CHIP 47uH
Q1	8-729-402-19	s TRANSISTOR XN6501
Q2	8-729-402-84	s TRANSISTOR XN4601
Q3	8-729-216-22	s TRANSISTOR 2SA1162
Q4	8-729-402-19	s TRANSISTOR XN6501
Q5	8-729-403-29	s TRANSISTOR XN6435
Q6	8-729-402-84	s TRANSISTOR XN4601
Q9	8-729-402-19	s TRANSISTOR XN6501
Q10	8-729-403-29	s TRANSISTOR XN6435
Q12	8-729-402-84	s TRANSISTOR XN4601
Q13	8-729-402-19	s TRANSISTOR XN6501
Q14	8-729-403-29	s TRANSISTOR XN6435
Q15	8-729-216-22	s TRANSISTOR 2SA1162
Q16	8-729-141-53	s TRANSISTOR 2SK94-X2X3X4
Q17	8-729-402-84	s TRANSISTOR XN4601 [for DXC-537A(J,UC)]

Please see pages D-13 and D-14 for the part numbers of capacitors and resistors that are not listed in the parts list.

(SG-171 BOARD)

Ref. No. or Q'ty	Part No.	SP Description
Q21	8-729-216-22	s TRANSISTOR 2SA1162
R10	1-216-644-11	s METAL, CHIP 510 0.5% 1/10W
R12	1-216-657-11	s METAL, CHIP 1.8K 0.5% 1/10W
R13	1-216-663-11	s METAL, CHIP 3.3K 0.5% 1/10W
R15	1-216-652-11	s METAL, CHIP 1.1K 0.5% 1/10W
R23	1-216-670-11	s METAL, CHIP 6.2K 0.5% 1/10W
R36	1-216-687-11	s METAL, CHIP 33K 0.5% 1/10W [for DXC-537A(J,UC)]
R57	1-216-663-11	s METAL, CHIP 3.3K 0.5% 1/10W [for DXC-537AP(EK)]
R68	1-216-641-11	s METAL, CHIP 390 0.5% 1/10W [for DXC-537A(J,UC)]
R68	1-216-661-11	s METAL, CHIP 2.7K 0.5% 1/10W [for DXC-537AP(EK)]
R69	1-216-641-11	s METAL, CHIP 390 0.5% 1/10W [for DXC-537A(J,UC)]
R69	1-216-661-11	s METAL, CHIP 2.7K 0.5% 1/10W [for DXC-537AP(EK)]
R82	1-216-686-11	s METAL, CHIP 30K 0.5% 1/10W
R83	1-216-685-11	s METAL, CHIP 27K 0.5% 1/10W
R89	1-216-675-11	s METAL, CHIP 10K 0.5% 1/10W
R90	1-216-687-11	s METAL, CHIP 33K 0.5% 1/10W
R91	1-216-683-11	s METAL, CHIP 22K 0.5% 1/10W
R99	1-216-657-11	s METAL, CHIP 1.8K 0.5% 1/10W
R116	1-216-686-11	s METAL, CHIP 30K 0.5% 1/10W
R117	1-216-685-11	s METAL, CHIP 27K 0.5% 1/10W
R123	1-216-675-11	s METAL, CHIP 10K 0.5% 1/10W
R124	1-216-687-11	s METAL, CHIP 33K 0.5% 1/10W
R125	1-216-683-11	s METAL, CHIP 22K 0.5% 1/10W
R137	1-216-683-11	s METAL, CHIP 22K 0.5% 1/10W [for DXC-537A(J,UC)]
R138	1-216-683-11	s METAL, CHIP 22K 0.5% 1/10W [for DXC-537A(J,UC)]
R140	1-216-672-11	s METAL, CHIP 7.5K 0.5% 1/10W
RV1	1-241-262-11	s RES, ADJ, METAL 2K
RV2	1-241-265-11	s RES, ADJ, METAL 20K

SW-590 BOARD

Ref. No. or Q'ty	Part No.	SP Description
1pc	1-562-739-11	o HOUSING, CONNECTOR 6P
1pc	1-564-831-11	o CONTACT, FEMALE
1pc	1-569-193-11	s CONTACT
1pc	1-569-197-11	o PLUG HOUSING, 4P
1pc	1-569-199-11	o PLUG HOUSING, 6P
1pc	1-648-026-12	o PRINTED CIRCUIT BOARD, SW-590
CN1	1-564-013-11	o CONNECTOR 3P, MALE
R1	1-215-405-00	s METAL 220 1% 1/6W
R2	1-215-425-00	s METAL 1.5K 1% 1/6W
R3	1-215-373-31	s METAL 10 1% 1/6W
R4	1-215-461-00	s METAL 47K 1% 1/6W
R5	1-215-453-00	s METAL 22K 1% 1/6W
S1	1-554-174-00	s SWITCH, TACTILE
S2	1-554-174-00	s SWITCH, TACTILE
S3	1-554-174-00	s SWITCH, TACTILE

SW-591 BOARD

Ref. No. or Q'ty	Part No.	SP Description
1pc	1-562-739-11	o HOUSING, CONNECTOR 6P
1pc	1-564-831-11	o CONTACT, FEMALE
1pc	1-569-193-11	s CONTACT
1pc	1-569-196-31	o HOUSING, 3P
1pc	1-569-196-41	o HOUSING, 3P
1pc	1-648-027-12	o PRINTED CIRCUIT BOARD, SW-591
CN11	1-564-014-11	s CONNECTOR 4P, MALE
R11	1-215-461-00	s METAL 47K 1% 1/6W
R12	1-215-425-00	s METAL 1.5K 1% 1/6W
R13	1-215-461-00	s METAL 47K 1% 1/6W
R14	1-215-425-00	s METAL 1.5K 1% 1/6W
R15	1-215-453-00	s METAL 22K 1% 1/6W
R16	1-215-461-00	s METAL 47K 1% 1/6W
R17	1-215-373-31	s METAL 10 1% 1/6W
R18	1-215-425-00	s METAL 1.5K 1% 1/6W
S11	1-570-985-11	s SWITCH, TOGGLE
S12	1-570-985-11	s SWITCH, TOGGLE
S13	1-570-985-11	s SWITCH, TOGGLE
S14	1-571-396-11	s SWITCH, TOGGLE
T11	1-427-487-00	s TRANSFORMER, OUTPUT

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SW-592 BOARD  
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Ref. No. or Q'ty	Part No.	SP Description
1pc	1-564-831-11	o CONTACT, FEMALE
1pc	1-569-193-11	s CONTACT
1pc	1-569-197-21	o HOUSING, 4P
1pc	1-648-028-11	o PRINTED CIRCUIT BOARD, SW-592
2pcs	3-167-445-02	s KNOB, SWITCH
SW1	1-571-259-11	s SWITCH, SLIDE
SW2	1-571-259-11	s SWITCH, SLIDE

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SW-622 BOARD  
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Ref. No. or Q'ty	Part No.	SP Description
1pc	1-648-029-11	o PRINTED CIRCUIT BOARD, SW-622
CB1	A1-532-681-00	s CIRCUIT BREAKER 4A 125V
CN1	1-560-364-00	o CONNECTOR POST HEADER, ILG (2P)

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VA-138 BOARD  
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Ref. No. or Q'ty	Part No.	SP Description
1pc	A-8271-906-A	o MOUNTED CIRCUIT BOARD, VA-138
1pc	3-179-896-01	o PLATE, SHIELD, VA
1pc	3-179-897-01	o SUPPORT
1pc	3-674-361-01	o SUPPORT, PC BOARD
1pc	7-622-207-05	s NUT 2.6, TYPE 2
C1	1-126-395-11	s ELECT, CHIP 22uF 20% 16V
C2	1-126-391-11	s ELECT, CHIP 47uF 20% 6.3V
C3	1-126-391-11	s ELECT, CHIP 47uF 20% 6.3V
C4	1-135-165-11	s TANTALUM, CHIP 33uF 10% 16V
C5	1-135-165-11	s TANTALUM, CHIP 33uF 10% 16V
C6	1-135-165-11	s TANTALUM, CHIP 33uF 10% 16V
C7	1-164-156-11	s CERAMIC 0.1uF 25V
C8	1-137-323-11	s FILM 0.01uF 5% 16V
C10	1-135-177-21	s TANTALUM, CHIP 1uF 10% 25V
C11	1-135-177-21	s TANTALUM, CHIP 1uF 10% 25V
C12	1-162-927-11	s CERAMIC, CHIP 100PF 5% 50V
C13	1-126-395-11	s ELECT, CHIP 22uF 20% 16V
C14	1-135-177-21	s TANTALUM, CHIP 1uF 10% 25V
C15	1-135-070-00	s TANTALUM, CHIP 0.1uF 10% 35V
C16	1-135-216-11	s TANTALUM, CHIP 10uF 20% 10V
C17	1-162-927-11	s CERAMIC, CHIP 100PF 5% 50V
C18	1-135-177-21	s TANTALUM, CHIP 1uF 10% 25V
C19	1-135-179-21	s TANTALUM, CHIP 2.2uF 10% 16V
C23	1-126-390-11	s ELECT, CHIP 22uF 20% 6.3V
C24	1-126-396-11	s ELECT, CHIP 47uF 20% 16V
C25	1-126-394-11	s ELECT, CHIP 10uF 20% 16V
C26	1-126-394-11	s ELECT, CHIP 10uF 20% 16V
C27	1-126-392-11	s ELECT, CHIP 100uF 20% 6.3V
C28	1-126-390-11	s ELECT, CHIP 22uF 20% 6.3V
C29	1-162-957-11	s CERAMIC 220PF 5% 50V
C30	1-135-216-11	s TANTALUM, CHIP 10uF 20% 10V
C31	1-135-177-21	s TANTALUM, CHIP 1uF 10% 25V
C32	1-126-392-11	s ELECT, CHIP 100uF 20% 6.3V
C33	1-126-396-11	s ELECT, CHIP 47uF 20% 16V
C34	1-126-392-11	s ELECT, CHIP 100uF 20% 6.3V
C35	1-126-390-11	s ELECT, CHIP 22uF 20% 6.3V
C36	1-126-390-11	s ELECT, CHIP 22uF 20% 6.3V
C37	1-135-161-21	s TANTALUM, CHIP 22uF 10% 10V
C38	1-135-177-21	s TANTALUM, CHIP 1uF 10% 25V
C39	1-162-970-11	s CERAMIC, CHIP 0.01uF 10% 25V
C40	1-164-315-11	s CERAMIC 470PF 5% 50V
C41	1-162-927-11	s CERAMIC, CHIP 100PF 5% 50V
C42	1-135-216-11	s TANTALUM, CHIP 10uF 20% 10V
C43	1-135-216-11	s TANTALUM, CHIP 10uF 20% 10V
C44	1-135-216-11	s TANTALUM, CHIP 10uF 20% 10V
C45	1-135-216-11	s TANTALUM, CHIP 10uF 20% 10V
C101	1-135-216-11	s TANTALUM, CHIP 10uF 20% 10V
C102	1-164-156-11	s CERAMIC 0.1uF 25V
C103	1-164-156-11	s CERAMIC 0.1uF 25V
C104	1-164-156-11	s CERAMIC 0.1uF 25V
C105	1-162-927-11	s CERAMIC, CHIP 100PF 5% 50V
C106	1-164-156-11	s CERAMIC 0.1uF 25V
C107	1-135-180-21	s TANTAL 3.3uF 20% 6.3V
C108	1-135-180-21	s TANTAL 3.3uF 20% 6.3V
C109	1-164-156-11	s CERAMIC 0.1uF 25V
C110	1-162-911-11	s CERAMIC, CHIP 6PF 50V
C112	1-164-156-11	s CERAMIC 0.1uF 25V
C114	1-135-180-21	s TANTAL 3.3uF 20% 6.3V
C115	1-135-180-21	s TANTAL 3.3uF 20% 6.3V

Please see pages D-13 and D-14 for the part numbers of capacitors and resistors that are not listed in the parts list.

## (VA-138 BOARD)

Ref. No. or Q'ty	Part No.	SP Description
C116	1-164-156-11	s CERAMIC 0.1uF 25V
C117	1-162-911-11	s CERAMIC, CHIP 6PF 50V
C119	1-135-214-21	s TANTAL 4.7uF 20% 20V
C120	1-135-072-21	s TANTALUM, CHIP 0.22uF 10% 35V
C121	1-135-072-21	s TANTALUM, CHIP 0.22uF 10% 35V
C123	1-164-315-11	s CERAMIC 470PF 5% 50V
C124	1-137-306-11	s FILM 0.1uF 5% 16V
C125	1-135-217-21	s TANTALUM, CHIP 15uF 10% 6.3
C126	1-164-156-11	s CERAMIC 0.1uF 25V
C201	1-135-216-11	s TANTALUM, CHIP 10uF 20% 10V
C202	1-164-156-11	s CERAMIC 0.1uF 25V
C203	1-164-156-11	s CERAMIC 0.1uF 25V
C204	1-164-156-11	s CERAMIC 0.1uF 25V
C205	1-162-927-11	s CERAMIC, CHIP 100PF 5% 50V
C206	1-164-156-11	s CERAMIC 0.1uF 25V
C207	1-135-180-21	s TANTAL 3.3uF 20% 6.3V
C208	1-135-180-21	s TANTAL 3.3uF 20% 6.3V
C209	1-164-156-11	s CERAMIC 0.1uF 25V
C210	1-162-911-11	s CERAMIC, CHIP 6PF 50V
C212	1-164-156-11	s CERAMIC 0.1uF 25V
C214	1-135-180-21	s TANTAL 3.3uF 20% 6.3V
C215	1-135-180-21	s TANTAL 3.3uF 20% 6.3V
C216	1-164-156-11	s CERAMIC 0.1uF 25V
C217	1-162-911-11	s CERAMIC, CHIP 6PF 50V
C220	1-135-072-21	s TANTALUM, CHIP 0.22uF 10% 35V
C221	1-135-072-21	s TANTALUM, CHIP 0.22uF 10% 35V
C223	1-164-315-11	s CERAMIC 470PF 5% 50V
C224	1-137-306-11	s FILM 0.1uF 5% 16V
C225	1-135-217-21	s TANTALUM, CHIP 15uF 10% 6.3
C226	1-164-156-11	s CERAMIC 0.1uF 25V
C301	1-135-216-11	s TANTALUM, CHIP 10uF 20% 10V
C302	1-164-156-11	s CERAMIC 0.1uF 25V
C303	1-164-156-11	s CERAMIC 0.1uF 25V
C304	1-164-156-11	s CERAMIC 0.1uF 25V
C305	1-162-927-11	s CERAMIC, CHIP 100PF 5% 50V
C306	1-164-156-11	s CERAMIC 0.1uF 25V
C307	1-135-180-21	s TANTAL 3.3uF 20% 6.3V
C308	1-135-180-21	s TANTAL 3.3uF 20% 6.3V
C309	1-164-156-11	s CERAMIC 0.1uF 25V
C310	1-162-911-11	s CERAMIC, CHIP 6PF 50V
C312	1-164-156-11	s CERAMIC 0.1uF 25V
C314	1-135-180-21	s TANTAL 3.3uF 20% 6.3V
C315	1-135-180-21	s TANTAL 3.3uF 20% 6.3V
C316	1-164-156-11	s CERAMIC 0.1uF 25V
C317	1-162-911-11	s CERAMIC, CHIP 6PF 50V
C320	1-135-072-21	s TANTALUM, CHIP 0.22uF 10% 35V
C321	1-135-072-21	s TANTALUM, CHIP 0.22uF 10% 35V
C323	1-164-315-11	s CERAMIC 470PF 5% 50V
C324	1-137-306-11	s FILM 0.1uF 5% 16V
C325	1-135-217-21	s TANTALUM, CHIP 15uF 10% 6.3
C326	1-164-156-11	s CERAMIC 0.1uF 25V
CN1	1-565-780-11	o CONNECTOR, TX(P.L)(PC BOARD) 50P
CN2	1-563-681-21	o CONNECTOR, BOARD TO BOARD 8P
CN3	1-563-687-21	o CONNECTOR, BOARD TO BOARD 14P
CN4	1-750-572-11	o CONNECTOR, BOARD TO BOARD 14P
CN5	1-750-572-11	o CONNECTOR, BOARD TO BOARD 14P
CN6	1-565-136-11	o PIN, CONNECTOR (STRAIGHT) 3P

## (VA-138 BOARD)

Ref. No. or Q'ty	Part No.	SP Description
D1	8-719-974-76	s DIODE HSM107S
D3	8-719-404-35	s DIODE MA141WK
D4	8-719-404-35	s DIODE MA141WK
D5	8-719-985-68	s DIODE HZSSCLL
D6	8-719-974-76	s DIODE HSM107S
D7	8-719-974-76	s DIODE HSM107S
D8	8-719-974-76	s DIODE HSM107S
E1	1-535-877-22	o CHIP, CHECKER
FL1	1-239-620-21	s FILTER, TRAP
FL2	1-239-620-21	s FILTER, TRAP
FL3	1-239-620-21	s FILTER, TRAP
IC1	8-752-052-71	s IC CXA1486Q
IC2	8-759-066-59	s IC TC74HC4053AFS
IC3	8-759-076-06	s IC TL064CPW
IC5	8-759-066-59	s IC TC74HC4053AFS
IC6	8-759-635-27	s IC M62352GP
IC7	8-752-052-71	s IC CXA1486Q
IC8	8-759-066-59	s IC TC74HC4053AFS
IC9	8-759-076-06	s IC TL064CPW
IC10	8-759-234-20	s IC TC7S08F
IC11	8-759-066-59	s IC TC74HC4053AFS
IC12	8-759-635-27	s IC M62352GP
IC13	8-752-052-71	s IC CXA1486Q
IC14	8-759-066-59	s IC TC74HC4053AFS
IC15	8-759-076-06	s IC TL064CPW
IC17	8-759-066-59	s IC TC74HC4053AFS
IC18	8-759-635-27	s IC M62352GP
IC19	8-759-089-61	s IC TC74HC4052AFS(EL)
IC20	8-759-066-61	s IC TC4053BFS
IC21	8-759-066-61	s IC TC4053BFS
IC22	8-759-076-06	s IC TL064CPW
IC23	8-759-101-12	s IC UPC311G2
IC24	8-759-169-20	s IC HD6305Y0E92F
IC25	8-759-630-27	s IC M5236ML
IC26	8-759-242-64	s IC TC4W53F
IC28	8-759-981-65	s IC LM2903M
IC29	8-759-906-53	s IC TL062CPS
IC30	8-759-551-68	s IC M6M80021FP
IC31	8-759-209-90	s IC TC4S71F
IC34	8-759-234-20	s IC TC7S08F
IC35	8-759-035-90	s IC SC7S02FEL
IC36	8-759-031-84	s IC SC7S04F
IC37	8-759-234-20	s IC TC7S08F
IC38	8-759-031-84	s IC SC7S04F
IC39	8-759-209-15	s IC TC4SU69F
L1	1-410-389-31	s INDUCTOR, CHIP 47uH
L2	1-410-389-31	s INDUCTOR, CHIP 47uH
L3	1-410-385-11	s INDUCTOR, CHIP 22uH
L6	1-410-387-11	s INDUCTOR, CHIP 33uH
Q1	8-729-905-23	s TRANSISTOR 2SA1576R
Q2	8-729-905-23	s TRANSISTOR 2SA1576R
Q3	8-729-905-23	s TRANSISTOR 2SA1576R
Q4	8-729-120-28	s TRANSISTOR 2SC1623-L5L6
Q5	8-729-402-19	s TRANSISTOR XN6501
Q6	8-729-402-19	s TRANSISTOR XN6501
Q7	8-729-120-28	s TRANSISTOR 2SC1623-L5L6
Q8	8-729-402-84	s TRANSISTOR XN4601

Please see pages D-13 and D-14 for the part numbers of capacitors and resistors that are not listed in the parts list.

## (VA-138 BOARD)

Ref. No. or Q'ty	Part No.	SP Description
Q9	8-729-402-84	s TRANSISTOR XN4601
Q11	8-729-120-28	s TRANSISTOR 2SC1623-L5L6
Q12	8-729-402-19	s TRANSISTOR XN6501
Q13	8-729-403-32	s TRANSISTOR XN6534
Q14	8-729-402-84	s TRANSISTOR XN4601
Q15	8-729-143-13	s TRANSISTOR 2SC4176-B34
Q16	8-729-120-28	s TRANSISTOR 2SC1623-L5L6
Q17	8-729-120-28	s TRANSISTOR 2SC1623-L5L6
Q18	8-729-120-28	s TRANSISTOR 2SC1623-L5L6
Q19	8-729-101-07	s TRANSISTOR 2SB798
Q20	8-729-101-07	s TRANSISTOR 2SB798
Q21	8-729-807-50	s TRANSISTOR 2SD1623
Q22	8-729-120-28	s TRANSISTOR 2SC1623-L5L6
Q23	8-729-109-44	s TRANSISTOR 2SK94
Q24	8-729-905-23	s TRANSISTOR 2SA1576R
Q25	8-729-905-23	s TRANSISTOR 2SA1576R
Q26	8-729-905-23	s TRANSISTOR 2SA1576R
Q101	8-729-905-23	s TRANSISTOR 2SA1576R
Q102	8-729-120-28	s TRANSISTOR 2SC1623-L5L6
Q201	8-729-905-23	s TRANSISTOR 2SA1576R
Q202	8-729-120-28	s TRANSISTOR 2SC1623-L5L6
Q301	8-729-905-23	s TRANSISTOR 2SA1576R
Q302	8-729-120-28	s TRANSISTOR 2SC1623-L5L6
R1	1-218-295-11	s METAL 5.6K 0.50% 1/16W
R2	1-218-295-11	s METAL 5.6K 0.50% 1/16W
R3	1-218-295-11	s METAL 5.6K 0.50% 1/16W
R4	1-218-716-11	s METAL 10K 0.50% 1/16W
R5	1-218-716-11	s METAL 10K 0.50% 1/16W
R6	1-218-716-11	s METAL 10K 0.50% 1/16W
R7	1-218-716-11	s METAL 10K 0.50% 1/16W
R8	1-216-822-11	s METAL, CHIP 1.2K 5% 1/16W
R9	1-218-698-11	s METAL 1.8K 0.50% 1/16W
R10	1-218-716-11	s METAL 10K 0.50% 1/16W
R11	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R12	1-216-817-11	s METAL, CHIP 470 5% 1/16W
R13	1-216-817-11	s METAL, CHIP 470 5% 1/16W
R14	1-218-688-11	s METAL 680 0.50% 1/16W
R15	1-218-700-11	s METAL 2.2K 0.50% 1/16W
R16	1-218-704-11	s METAL 3.3K 0.50% 1/16W
R17	1-218-704-11	s METAL 3.3K 0.50% 1/16W
R18	1-218-716-11	s METAL 10K 0.50% 1/16W
R19	1-218-708-11	s METAL 4.7K 0.50% 1/16W
R20	1-218-668-11	s METAL 100 0.50% 1/16W
R21	1-218-716-11	s METAL 10K 0.50% 1/16W
R22	1-218-708-11	s METAL 4.7K 0.50% 1/16W
R23	1-216-814-11	s METAL, CHIP 270 5% 1/16W
R24	1-216-814-11	s METAL, CHIP 270 5% 1/16W
R25	1-218-708-11	s METAL 4.7K 0.50% 1/16W
R26	1-218-716-11	s METAL 10K 0.50% 1/16W
R27	1-218-704-11	s METAL 3.3K 0.50% 1/16W
R28	1-218-714-11	s METAL 8.2K 0.50% 1/16W
R29	1-218-724-11	s METAL 22K 0.50% 1/16W
R30	1-218-708-11	s METAL 4.7K 0.50% 1/16W
R31	1-218-752-11	s METAL 330K 0.50% 1/16W
R32	1-216-857-11	s METAL, CHIP 1M 5% 1/16W
R33	1-218-716-11	s METAL 10K 0.50% 1/16W
R34	1-218-668-11	s METAL 100 0.50% 1/16W
R35	1-218-668-11	s METAL 100 0.50% 1/16W

## (VA-138 BOARD)

Ref. No. or Q'ty	Part No.	SP Description
R36	1-218-668-11	s METAL 100 0.50% 1/16W
R37	1-218-716-11	s METAL 10K 0.50% 1/16W
R38	1-218-740-11	s METAL 100K 0.50% 1/16W
R39	1-218-716-11	s METAL 10K 0.50% 1/16W
R40	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R41	1-218-668-11	s METAL 100 0.50% 1/16W
R42	1-218-668-11	s METAL 100 0.50% 1/16W
R43	1-218-668-11	s METAL 100 0.50% 1/16W
R44	1-218-708-11	s METAL 4.7K 0.50% 1/16W
R45	1-218-668-11	s METAL 100 0.50% 1/16W
R46	1-218-716-11	s METAL 10K 0.50% 1/16W
R47	1-218-716-11	s METAL 10K 0.50% 1/16W
R48	1-218-295-11	s METAL 5.6K 0.50% 1/16W
R49	1-218-704-11	s METAL 3.3K 0.50% 1/16W
R50	1-218-732-11	s METAL 47K 0.50% 1/16W
R51	1-218-704-11	s METAL 3.3K 0.50% 1/16W
R52	1-218-716-11	s METAL 10K 0.50% 1/16W
R53	1-216-857-11	s METAL, CHIP 1M 5% 1/16W
R54	1-218-668-11	s METAL 100 0.50% 1/16W
R55	1-218-708-11	s METAL 4.7K 0.50% 1/16W
R56	1-218-700-11	s METAL 2.2K 0.50% 1/16W
R57	1-216-994-11	s METAL, CHIP 13K 5% 1/16W
R58	1-218-740-11	s METAL 100K 0.50% 1/16W
R59	1-218-708-11	s METAL 4.7K 0.50% 1/16W
R60	1-218-716-11	s METAL 10K 0.50% 1/16W
R61	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R62	1-218-716-11	s METAL 10K 0.50% 1/16W
R63	1-218-734-11	s METAL 56K 0.50% 1/16W
R64	1-218-295-11	s METAL 5.6K 0.50% 1/16W
R65	1-218-708-11	s METAL 4.7K 0.50% 1/16W
R66	1-218-716-11	s METAL 10K 0.50% 1/16W
R67	1-216-823-11	s METAL, CHIP 1.5K 5% 1/16W
R68	1-218-700-11	s METAL 2.2K 0.50% 1/16W
R69	1-218-708-11	s METAL 4.7K 0.50% 1/16W
R70	1-218-295-11	s METAL 5.6K 0.50% 1/16W
R71	1-218-698-11	s METAL 1.8K 0.50% 1/16W
R72	1-216-853-11	s METAL, CHIP 470K 5% 1/16W
R73	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R74	1-216-836-11	s METAL, CHIP 18K 5% 1/16W
R75	1-218-714-11	s METAL 8.2K 0.50% 1/16W
R76	1-216-823-11	s METAL, CHIP 1.5K 5% 1/16W
R77	1-218-724-11	s METAL 22K 0.50% 1/16W
R78	1-218-676-11	s METAL 220 0.50% 1/16W
R79	1-216-817-11	s METAL, CHIP 470 5% 1/16W
R80	1-216-836-11	s METAL, CHIP 18K 5% 1/16W
R81	1-216-826-11	s METAL, CHIP 2.7K 5% 1/16W
R82	1-218-883-11	s METAL 33K 0.50% 1/16W
R83	1-216-804-11	s METAL 39K 0.50% 1/16W
R84	1-216-823-11	s METAL, CHIP 1.5K 5% 1/16W
R85	1-218-883-11	s METAL 33K 0.50% 1/16W
R86	1-216-836-11	s METAL, CHIP 18K 5% 1/16W
R87	1-218-716-11	s METAL 10K 0.50% 1/16W
R88	1-218-668-11	s METAL 100 0.50% 1/16W
R89	1-218-668-11	s METAL 100 0.50% 1/16W
R90	1-218-668-11	s METAL 100 0.50% 1/16W
R91	1-218-716-11	s METAL 10K 0.50% 1/16W
R92	1-218-708-11	s METAL 4.7K 0.50% 1/16W
R93	1-218-708-11	s METAL 4.7K 0.50% 1/16W
R94	1-216-817-11	s METAL, CHIP 470 5% 1/16W

Please see pages D-13 and D-14 for the part numbers of capacitors and resistors that are not listed in the parts list.



## (VA-138 BOARD)

Ref. No. or Q'ty	Part No.	SP Description
R96	1-216-817-11	s METAL, CHIP 470 5% 1/16W
R98	1-218-708-11	s METAL 4.7K 0.50% 1/16W
R100	1-218-668-11	s METAL 100 0.50% 1/16W
R101	1-218-700-11	s METAL 2.2K 0.50% 1/16W
R102	1-218-668-11	s METAL 100 0.50% 1/16W
R103	1-216-795-11	s METAL 6.8K 0.50% 1/16W
R104	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R105	1-216-804-11	s METAL 39K 0.50% 1/16W
R106	1-218-668-11	s METAL 100 0.50% 1/16W
R107	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R108	1-218-704-11	s METAL 3.3K 0.50% 1/16W
R109	1-218-668-11	s METAL 100 0.50% 1/16W
R110	1-218-708-11	s METAL 4.7K 0.50% 1/16W
R111	1-218-708-11	s METAL 4.7K 0.50% 1/16W
R112	1-218-716-11	s METAL 10K 0.50% 1/16W
R113	1-218-708-11	s METAL 4.7K 0.50% 1/16W
R114	1-216-857-11	s METAL, CHIP 1M 5% 1/16W
R116	1-218-740-11	s METAL 100K 0.50% 1/16W
R117	1-218-716-11	s METAL 10K 0.50% 1/16W
R118	1-216-823-11	s METAL, CHIP 1.5K 5% 1/16W
R119	1-218-668-11	s METAL 100 0.50% 1/16W
R120	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R121	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R122	1-218-668-11	s METAL 100 0.50% 1/16W
R123	1-216-817-11	s METAL, CHIP 470 5% 1/16W
R124	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R125	1-218-668-11	s METAL 100 0.50% 1/16W
R126	1-218-708-11	s METAL 4.7K 0.50% 1/16W
R127	1-218-698-11	s METAL 1.8K 0.50% 1/16W
R128	1-218-732-11	s METAL 47K 0.50% 1/16W
R129	1-218-668-11	s METAL 100 0.50% 1/16W
R130	1-218-740-11	s METAL 100K 0.50% 1/16W
R134	1-218-734-11	s METAL 56K 0.50% 1/16W
R135	1-218-724-11	s METAL 22K 0.50% 1/16W
R136	1-218-732-11	s METAL 47K 0.50% 1/16W
R137	1-218-724-11	s METAL 22K 0.50% 1/16W
R138	1-218-724-11	s METAL 22K 0.50% 1/16W
R139	1-218-724-11	s METAL 22K 0.50% 1/16W
R140	1-218-732-11	s METAL 47K 0.50% 1/16W
R141	1-218-732-11	s METAL 47K 0.50% 1/16W
R142	1-218-732-11	s METAL 47K 0.50% 1/16W
R144	1-218-734-11	s METAL 56K 0.50% 1/16W
R145	1-218-732-11	s METAL 47K 0.50% 1/16W
R146	1-218-724-11	s METAL 22K 0.50% 1/16W
R147	1-218-740-11	s METAL 100K 0.50% 1/16W
R149	1-218-732-11	s METAL 47K 0.50% 1/16W
R150	1-218-732-11	s METAL 47K 0.50% 1/16W
R151	1-218-668-11	s METAL 100 0.50% 1/16W
R152	1-218-732-11	s METAL 47K 0.50% 1/16W
R153	1-216-817-11	s METAL, CHIP 470 5% 1/16W
R154	1-218-724-11	s METAL 22K 0.50% 1/16W
R157	1-218-740-11	s METAL 100K 0.50% 1/16W
R159	1-216-817-11	s METAL, CHIP 470 5% 1/16W
R161	1-218-740-11	s METAL 100K 0.50% 1/16W
R162	1-218-732-11	s METAL 47K 0.50% 1/16W
R164	1-216-864-11	s METAL, CHIP 0-OHM
R166	1-216-864-11	s METAL, CHIP 0-OHM
R201	1-218-700-11	s METAL 2.2K 0.50% 1/16W
R202	1-218-668-11	s METAL 100 0.50% 1/16W

## (VA-138 BOARD)

Ref. No. or Q'ty	Part No.	SP Description
R203	1-216-795-11	s METAL 6.8K 0.50% 1/16W
R204	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R205	1-216-804-11	s METAL 39K 0.50% 1/16W
R206	1-218-668-11	s METAL 100 0.50% 1/16W
R207	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R208	1-218-704-11	s METAL 3.3K 0.50% 1/16W
R209	1-218-668-11	s METAL 100 0.50% 1/16W
R210	1-218-708-11	s METAL 4.7K 0.50% 1/16W
R211	1-218-708-11	s METAL 4.7K 0.50% 1/16W
R212	1-218-716-11	s METAL 10K 0.50% 1/16W
R213	1-218-708-11	s METAL 4.7K 0.50% 1/16W
R214	1-218-668-11	s METAL 100 0.50% 1/16W
R216	1-218-740-11	s METAL 100K 0.50% 1/16W
R217	1-218-716-11	s METAL 10K 0.50% 1/16W
R218	1-216-823-11	s METAL, CHIP 1.5K 5% 1/16W
R219	1-218-668-11	s METAL 100 0.50% 1/16W
R220	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R221	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R222	1-218-668-11	s METAL 100 0.50% 1/16W
R223	1-216-817-11	s METAL, CHIP 470 5% 1/16W
R224	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R225	1-218-668-11	s METAL 100 0.50% 1/16W
R226	1-218-708-11	s METAL 4.7K 0.50% 1/16W
R227	1-218-698-11	s METAL 1.8K 0.50% 1/16W
R228	1-218-732-11	s METAL 47K 0.50% 1/16W
R229	1-218-668-11	s METAL 100 0.50% 1/16W
R230	1-218-740-11	s METAL 100K 0.50% 1/16W
R234	1-218-734-11	s METAL 56K 0.50% 1/16W
R235	1-218-724-11	s METAL 22K 0.50% 1/16W
R236	1-218-732-11	s METAL 47K 0.50% 1/16W
R237	1-218-724-11	s METAL 22K 0.50% 1/16W
R238	1-218-724-11	s METAL 22K 0.50% 1/16W
R239	1-218-724-11	s METAL 22K 0.50% 1/16W
R240	1-218-732-11	s METAL 47K 0.50% 1/16W
R241	1-218-732-11	s METAL 47K 0.50% 1/16W
R242	1-218-732-11	s METAL 47K 0.50% 1/16W
R244	1-218-734-11	s METAL 56K 0.50% 1/16W
R245	1-218-732-11	s METAL 47K 0.50% 1/16W
R246	1-218-724-11	s METAL 22K 0.50% 1/16W
R247	1-218-740-11	s METAL 100K 0.50% 1/16W
R249	1-218-732-11	s METAL 47K 0.50% 1/16W
R250	1-218-732-11	s METAL 47K 0.50% 1/16W
R251	1-218-668-11	s METAL 100 0.50% 1/16W
R252	1-218-732-11	s METAL 47K 0.50% 1/16W
R253	1-216-817-11	s METAL, CHIP 470 5% 1/16W
R254	1-218-724-11	s METAL 22K 0.50% 1/16W
R255	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R257	1-218-740-11	s METAL 100K 0.50% 1/16W
R259	1-216-817-11	s METAL, CHIP 470 5% 1/16W
R261	1-218-740-11	s METAL 100K 0.50% 1/16W
R262	1-218-732-11	s METAL 47K 0.50% 1/16W
R263	1-218-724-11	s METAL 22K 0.50% 1/16W
R264	1-218-708-11	s METAL 4.7K 0.50% 1/16W
R301	1-218-700-11	s METAL 2.2K 0.50% 1/16W
R302	1-218-668-11	s METAL 100 0.50% 1/16W
R303	1-216-795-11	s METAL 6.8K 0.50% 1/16W
R304	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R305	1-216-804-11	s METAL 39K 0.50% 1/16W
R306	1-218-668-11	s METAL 100 0.50% 1/16W

Please see pages D-13 and D-14 for the part numbers of capacitors and resistors that are not listed in the parts list.

## (VA-138 BOARD)

Ref. No. or Q'ty	Part No.	SP Description
R307	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R308	1-218-704-11	s METAL 3.3K 0.50% 1/16W
R309	1-218-668-11	s METAL 100 0.50% 1/16W
R310	1-218-708-11	s METAL 4.7K 0.50% 1/16W
R311	1-218-708-11	s METAL 4.7K 0.50% 1/16W
R312	1-218-716-11	s METAL 10K 0.50% 1/16W
R313	1-218-708-11	s METAL 4.7K 0.50% 1/16W
R316	1-218-740-11	s METAL 100K 0.50% 1/16W
R317	1-218-716-11	s METAL 10K 0.50% 1/16W
R318	1-216-823-11	s METAL, CHIP 1.5K 5% 1/16W
R319	1-218-668-11	s METAL 100 0.50% 1/16W
R320	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R321	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R322	1-218-668-11	s METAL 100 0.50% 1/16W
R323	1-216-817-11	s METAL, CHIP 470 5% 1/16W
R324	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R325	1-218-668-11	s METAL 100 0.50% 1/16W
R326	1-218-708-11	s METAL 4.7K 0.50% 1/16W
R327	1-218-698-11	s METAL 1.8K 0.50% 1/16W
R328	1-218-732-11	s METAL 47K 0.50% 1/16W
R329	1-218-668-11	s METAL 100 0.50% 1/16W
R330	1-218-740-11	s METAL 100K 0.50% 1/16W
R334	1-218-734-11	s METAL 56K 0.50% 1/16W
R335	1-218-724-11	s METAL 22K 0.50% 1/16W
R336	1-218-732-11	s METAL 47K 0.50% 1/16W
R337	1-218-724-11	s METAL 22K 0.50% 1/16W
R338	1-218-724-11	s METAL 22K 0.50% 1/16W
R339	1-218-724-11	s METAL 22K 0.50% 1/16W
R340	1-218-732-11	s METAL 47K 0.50% 1/16W
R341	1-218-732-11	s METAL 47K 0.50% 1/16W
R342	1-218-732-11	s METAL 47K 0.50% 1/16W
R344	1-218-734-11	s METAL 56K 0.50% 1/16W
R345	1-218-732-11	s METAL 47K 0.50% 1/16W
R346	1-218-724-11	s METAL 22K 0.50% 1/16W
R347	1-218-740-11	s METAL 100K 0.50% 1/16W
R349	1-218-732-11	s METAL 47K 0.50% 1/16W
R350	1-218-732-11	s METAL 47K 0.50% 1/16W
R351	1-218-668-11	s METAL 100 0.50% 1/16W
R352	1-218-732-11	s METAL 47K 0.50% 1/16W
R353	1-216-817-11	s METAL, CHIP 470 5% 1/16W
R354	1-218-724-11	s METAL 22K 0.50% 1/16W
R357	1-218-740-11	s METAL 100K 0.50% 1/16W
R359	1-216-817-11	s METAL, CHIP 470 5% 1/16W
R361	1-218-740-11	s METAL 100K 0.50% 1/16W
R362	1-218-732-11	s METAL 47K 0.50% 1/16W
R403	1-218-708-11	s METAL 4.7K 0.50% 1/16W
R404	1-218-708-11	s METAL 4.7K 0.50% 1/16W
R405	1-218-668-11	s METAL 100 0.50% 1/16W
R406	1-218-708-11	s METAL 4.7K 0.50% 1/16W
R407	1-218-708-11	s METAL 4.7K 0.50% 1/16W
R409	1-218-740-11	s METAL 100K 0.50% 1/16W
R410	1-218-740-11	s METAL 100K 0.50% 1/16W
R411	1-218-740-11	s METAL 100K 0.50% 1/16W
R412	1-218-740-11	s METAL 100K 0.50% 1/16W
R413	1-218-740-11	s METAL 100K 0.50% 1/16W
R414	1-218-668-11	s METAL 100 0.50% 1/16W
R415	1-218-668-11	s METAL 100 0.50% 1/16W
R416	1-218-668-11	s METAL 100 0.50% 1/16W
R417	1-218-668-11	s METAL 100 0.50% 1/16W

## (VA-138 BOARD)

Ref. No. or Q'ty	Part No.	SP Description
R418	1-218-668-11	s METAL 100 0.50% 1/16W
R419	1-218-668-11	s METAL 100 0.50% 1/16W
R420	1-218-716-11	s METAL 10K 0.50% 1/16W
R421	1-216-821-11	s METAL, CHIP 1K 5% 1/16W
R422	1-218-668-11	s METAL 100 0.50% 1/16W
R423	1-218-716-11	s METAL 10K 0.50% 1/16W
R424	1-218-716-11	s METAL 10K 0.50% 1/16W
RB1	1-231-387-00	s COMPOSITION CIRCUIT BLOCK
RV1	1-241-263-11	s RES, ADJ, METAL 5K
RV2	1-241-263-11	s RES, ADJ, METAL 5K
RV3	1-241-263-11	s RES, ADJ, METAL 5K
RV4	1-241-264-11	s RES, ADJ, METAL 10K
RV5	1-241-264-11	s RES, ADJ, METAL 10K
RV6	1-241-264-11	s RES, ADJ, METAL 10K
RV7	1-237-033-11	s RES, ADJ, METAL 1K
S1	1-571-275-31	s SWITCH, SLIDE
S2	1-571-275-31	s SWITCH, SLIDE
TP1	1-535-877-22	o CHIP, CHECKER
TP2	1-535-877-22	o CHIP, CHECKER
TP3	1-535-877-22	o CHIP, CHECKER
X1	1-579-216-11	s VIBRATOR, CERAMIC 4.0MHz

Please see pages D-13 and D-14 for the part numbers of capacitors and resistors that are not listed in the parts list.



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FRAME  
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Ref. No. or Q'ty	Part No.	SP Description
	1-547-259-11	o FILTER UNIT, OPTICAL
	1-590-489-11	s CABLE, FLAT 25P
CN101	1-562-782-21	s CONNECTOR 10P, FEMALE "REMOTE", or
	1-948-168-11	o HARNESS (CN)
CN102	1-562-221-21	s CONNECTOR, 12P, FEMALE "LENS"
CN103	1-561-320-00	s CONNECTOR, 8P FEMALE "VF, or
	1-948-168-11	o HARNESS (CN)
CN104	1-561-781-21	s CONNECTOR, BNC, "VIDEO OUT"
CN105	1-750-551-11	o CONNECTOR, 3P FEMALE "MIC"
CN1F (TO SW-590 BOARD)		
	1-569-196-11	o HOUSING, 3P
	1-569-193-11	s CONTACT
CN1F (TO SW-622 BOARD)		
	1-561-514-00	o HOUSING, 2P
	1-560-372-00	o CONTACT, AWG22-28
CN4F (TO MB-477 BOARD)		
	1-569-195-41	o HOUSING, 2P
	1-569-193-11	s CONTACT
CN5F (TO MB-477 BOARD)		
	1-569-203-11	o HOUSING, 10P
	1-569-193-11	s CONTACT
CN6F (TO MB-477 BOARD)		
	1-569-200-11	o HOUSING, 7P
	1-569-193-11	s CONTACT
CN7F (TO MB-477 BOARD)		
	1-569-195-11	o HOUSING, 2P
	1-569-193-11	s CONTACT
CN8F (TO MB-477 BOARD)		
	1-569-195-11	o HOUSING, 2P
	1-569-193-11	s CONTACT
CN9F (TO MB-477 BOARD)		
	1-569-195-11	o HOUSING, 2P
	1-569-193-11	s CONTACT
CN10F (TO MB-477 BOARD)		
	1-569-200-31	o HOUSING, 7P
	1-569-193-11	s CONTACT
CN11F (TO MB-477 BOARD)		
	1-569-201-21	o HOUSING, 8P
	1-569-193-11	s CONTACT
CN11F (TO SW-591 BOARD)		
	1-569-197-11	o HOUSING, 4P
	1-569-193-11	s CONTACT
CN12F (TO MB-477 BOARD)		
	1-569-201-11	o HOUSING, 8P
	1-569-193-11	s CONTACT
CN13F (TO MB-477 BOARD)		
	1-561-514-00	o HOUSING, 2P
	1-560-372-00	o CONTACT, AWG22-28
CN14F (TO MB-477 BOARD)		
	1-569-195-21	o HOUSING, 2P
	1-569-193-11	s CONTACT
CN19F (TO MB-477 BOARD)		
	1-569-196-21	o HOUSING, 3P
	1-569-193-11	s CONTACT
CN20F (TO MB-477 BOARD)		
	1-569-196-11	o HOUSING, 3P
	1-569-193-11	s CONTACT
CN21F (TO MB-477 BOARD)		
	1-569-195-11	o HOUSING, 2P
	1-569-193-11	s CONTACT
CN22F (TO MB-477 BOARD)		
	1-569-199-11	o HOUSING, 6P
	1-569-193-11	s CONTACT

(FRAME)

Ref. No. or Q'ty	Part No.	SP Description
CN23F (TO MB-477 BOARD)		
	1-569-197-21	o HOUSING, 4P
	1-569-193-11	s CONTACT
CN24F (TO MB-477 BOARD)		
	1-569-196-11	o HOUSING, 3P
	1-569-193-11	s CONTACT
CN25F (TO MB-477 BOARD)		
	1-569-196-11	o HOUSING, 3P
	1-569-193-11	s CONTACT
S101	1-552-852-00	s SWITCH, TOGGLE "POWER"
S102	1-554-486-00	s SWITCH, TOGGLE "AUTO W/B BALANCE"

Please see pages D-13 and D-14 for the part numbers of capacitors and resistors that are not listed in the parts list.

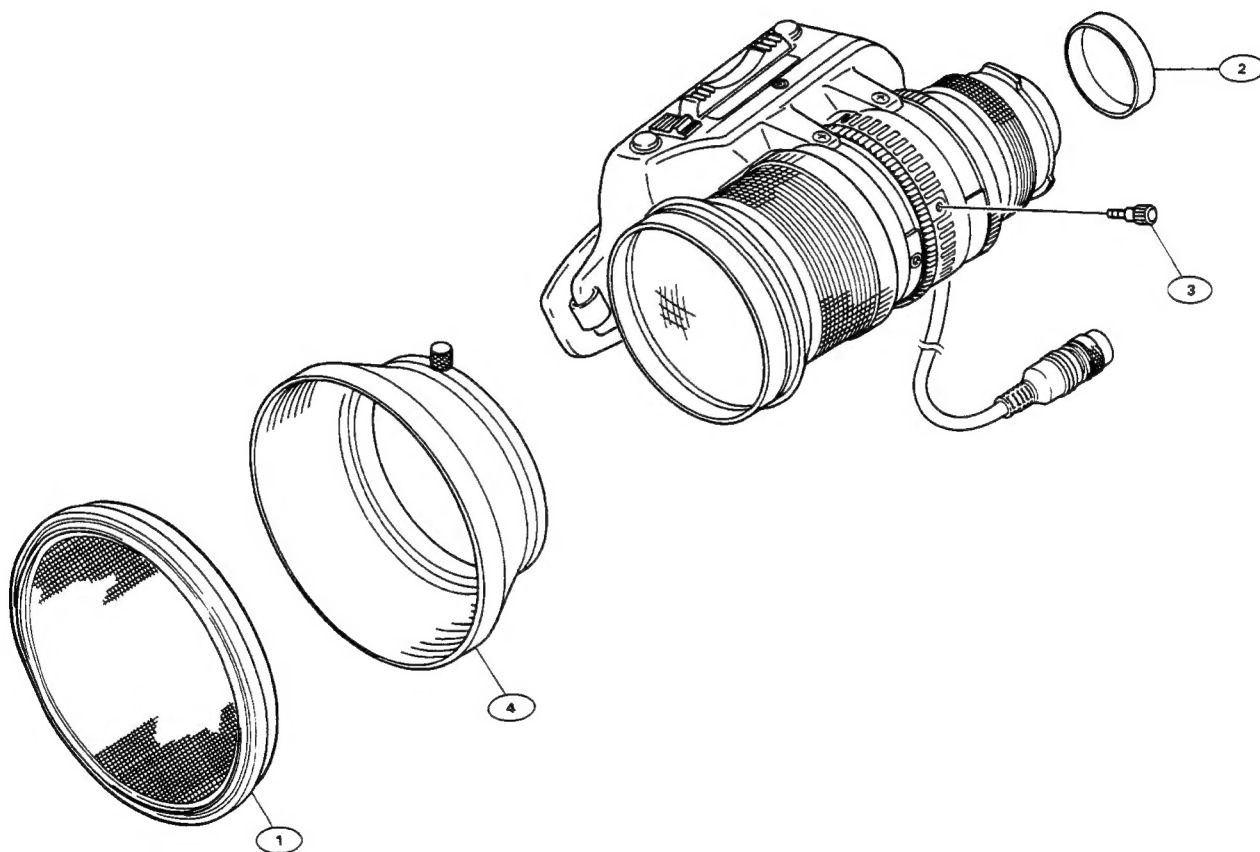
**VCL-916BYA**  
**VCT-14**



## EXPLODED VIEW

VCL-916BYA

No.	Part No.	SP Description
1	3-707-245-01	o CAP, HOOD
2	3-707-246-01	o CAP, DUST
3	3-707-247-01	o LEVER, ZOOM
4	3-708-171-01	o HOOD, LENS



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VCT-14  
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No.	Parts No.	SP Description
1	2-381-631-01	o SPRING
2	2-381-632-01	o ARM, LOCKER
3	2-381-633-01	o SOLENOID
4	2-381-635-01	o LEVER, LOCK
5	2-381-636-01	o KNOB
6	2-381-637-01	o SPRING
7	2-381-638-01	o SPRING
8	2-381-640-01	o DOG
9	2-381-641-01	o COLLAR
10	2-381-642-02	o MOUNT
11	2-381-648-01	o INSULATOR, KNOB
12	2-381-652-01	o SPRING, TENSION
13	3-678-704-00	o SPACER
14	3-720-906-01	o LID (S), REAR
15	3-720-907-01	o PIN (S), REAR
16	3-720-908-01	o TABLE (S), PIN, REAR
17	3-720-909-01	o KNOB, CRANK
18	3-720-910-01	o SHEET, SLIDE
19	3-720-911-01	o BASE, TRIPOD FITTING SCREW
20	3-720-912-01	o FRAME (S)
21	OPTIONAL ACCESSORY: TRIPOD ATTACHMENT "VCT-14"	

## VCT-14

